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REPORT

OF THE

WATER SUPPLY COMMISSION

OF

PENNSYLVANIA.

1908.

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WATER SUPPLY COMMISSION OF [illegible]SYLVANIA

MAP SHOWING

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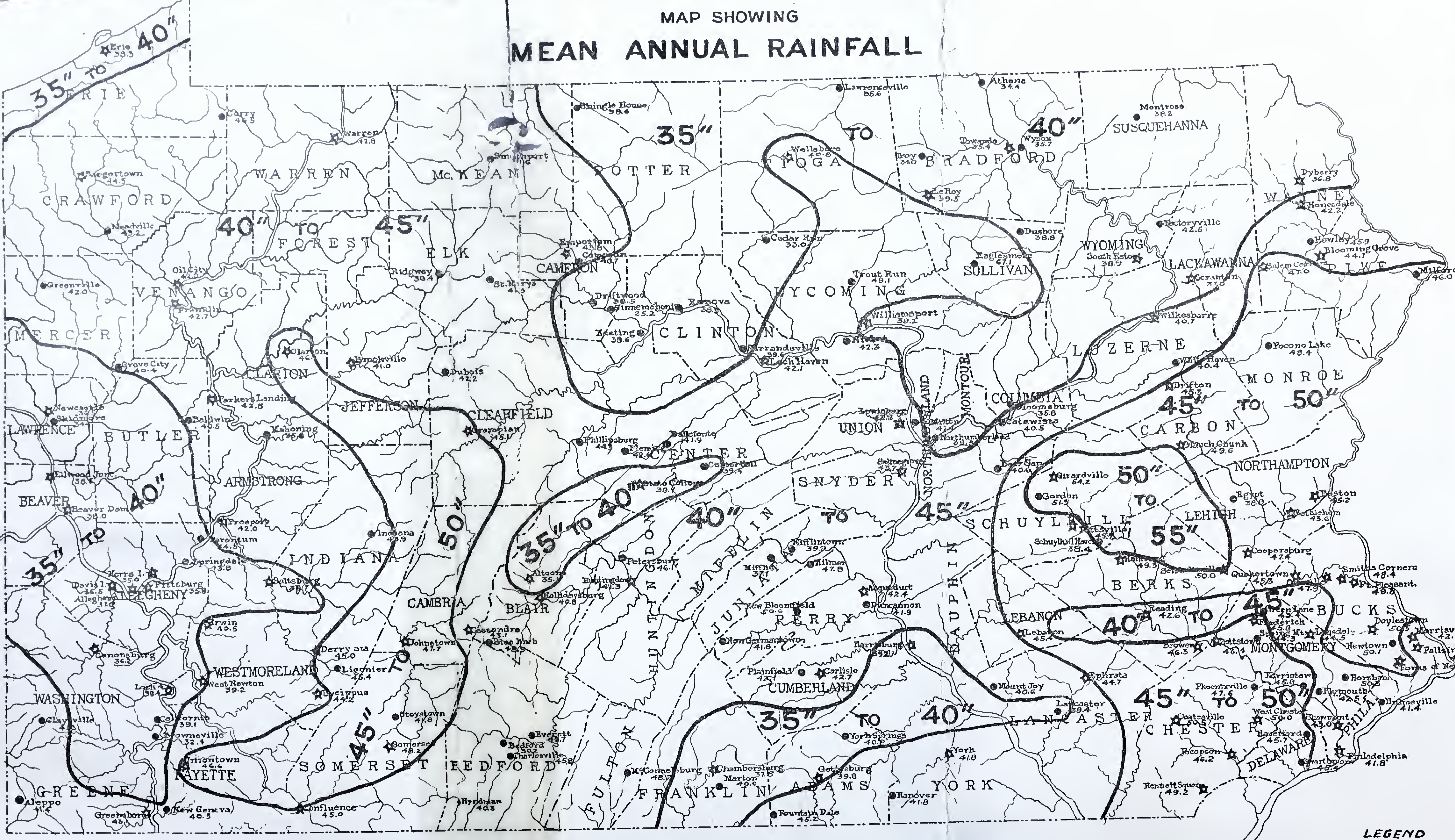

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The Commission expresses its thanks to the various State Departments, the Hydrographic Branch of the United States Geological Survey, the United States Weather Bureau, and to municipal organizations, corporations and individuals who have supplied information embodied in this report.

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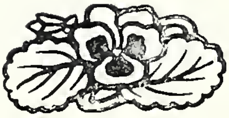


REPORT

OF THE

WATER SUPPLY COMMISSION OF PENNSYLVANIA.

Office of the Water Supply Commission,
Harrisburg, December 31st, 1908.

To the Honorable Edwin S. Stuart, Governor of the Commonwealth of Pennsylvania:

To the Members of the Senate and the House of Representatives of the Commonwealth of Pennsylvania:

In compliance with the provisions of the Act of the General Assembly approved May 4th, 1905, The Water Supply Commission of Pennsylvania respectfully submits its report for the year 1908.

During the year 17 applications for charters for water companies and 3 charters for water power companies were approved by the Commission, and letters patent thereon issued by the Governor, while 2 agreements of consolidation and merger by and between water companies previously created were similarly approved.

Under the Act of the General Assembly approved May 28th, 1907, providing that no obstruction shall be placed in or along any river or stream within the Commonwealth which has been declared public or navigable, 34 cases have been considered by the Commission, either upon application for its approval of the placing of an obstruction or upon complaint made to the Commission against the placing of an obstruction without its approval, of which cases 19 applications were approved. It has been the aim of the Commission to preserve the flood carrying capacity of the channel of the streams, and to reduce the amount of silt carried thereby, and it is gratified to report that the condition of the channels of some of the streams show improvement therein. The report of the Engineer of the Commission, upon the Causes of and Methods of Relief from Floods in Turtle Creek, which appears as an appendix to this report, details investigations authorized by the Commission in the endeavor to ascertain and assist in relieving the extreme conditions of restricted channel and flood overflow which occur periodically in that valley.

The system of stream gagings, inaugurated by the Commission in 1907, has been materially extended during the year, 20 new stations having been established. The total number now maintained is 50, while in addition to those maintained by the Commission, data from 23 additional stations is regularly received. A daily record of the volume of flow of the streams at these stations is obtained and tabulated, and the Commission expects to publish these data during the coming year. In the meantime the records are in the office of the Commission for the use of those requiring such information.

In the fall of 1907 the Commission undertook the systematic examination of every water supply and water power system, private or incorporated, in the Commonwealth, in order that complete data might be at hand when considering applications for proposed new companies, and in order that it might have thorough knowledge of the condition of the water supplies of the State. This work covers the inspection by an employe of the Commission of each water supply system, and the preparation of maps of each county on which the systems are plotted on a scale of one mile to the inch. Detailed reports upon each county, describing the condition of the principal streams, towns and their water supplies are then prepared. The status of all unused charters is also examined, and it is expected that this work will be completed before the end of the year 1909.

Special endeavor was made to obtain specific information concerning flood and drought conditions in the State, both during the high water periods of the winter and spring and during the extraordinary drought of the summer and fall, and the data obtained have been compiled in Chapters 4 and 5 of this report. Other subjects which the Commission has studied during this period, concerning which it feels that the public should be informed, are discussed in detail.

Respectfully submitted,

JOHN BIRKINBINE,
Chairman.

HENRY M. BRACKENRIDGE,
Vice-Chairman.

THOMAS J. LYNCH,
Secretary.

ROBERT S. CONKLIN,
Commissioner of Forestry.

SAMUEL G. DIXON,
Commissioner of Health.

CHAPTER I.

INACTIVE WATER COMPANIES.

The status of water and water power companies which have been regularly incorporaed and granted franchises, but which have wholly failed to do the things for which the franchises were granted, or to perform the public duties imposed upon them by the grant from the State, has engaged the attention of the Commission. One of the objects for which this Commission was formed was that of conserving the water resources of the State, by preventing, as far as possible, the improvident granting of charters where there did not appear to be a bona fide intention on the part of the incorporators to put them to use, and the consequent tieing-up, unused, of this valuable resource of the State; and if this is so it is equally important that the State reclaim those franchises which have heretofore been granted, which never having been used, should revert to the State that they may be re-granted, when there is need for their use.

That it was the intention of the framers of the general law for the formation and regulation of corporations, that rights granted to corporations should not be allowed to remain unused in the hands of the grantee, is evident. The Act of April 17th, 1876, amending the original Corporation Act of April 29th, 1874, provides in Section 11, as follows:

> "If any company incorporated under this act, or the act to which this is a supplement, shall not proceed to carry on its work and construct its necessary buildings, structures and improvements within the space of two years from the date of its letters patent, and shall not within the space of five years thereafter complete the same, the rights and privileges thereby granted to said corporation shall revert to the Commonwealth."

This provision was subsequently amended by the Act of May 16th, 1889, which re-enacted the above quoted provision, and added the proviso that any corporation which had failed to complete its work within the time prescribed may, by application to the Court of Common Pleas of the county wherein it is situated, secure additional time.

Prior to this amendment, however, the Legislature passed a new and distinct provision on the subject, Section 5 of the Act of June 13th, 1883, providing that "any corporation of the second class, created under the provisions of the act to which this is a supplement, or any of its suplements, that shall not within two years from the date of its letters patent in good faith organize and do the things contemplated by its charter and have paid up at least one-fourth of its capital stock, shall be held and deemed to have forfeited its charter, and the Attorney General shall, on application of any citizen, take the proper legal steps to forfeit and vacate its said charter."

The reading of these statutory provisions makes it evident that, in the minds of the legislators, a franchise granted by the State and unused for a period of two years should revert to the State and not be allowed to remain, much less be compelled to remain, in the hands of the grantees. If this is the proper view to take of unused franchises for corporations in general, formed under the Act of April 29th, 1874, and its supplements, it ought unquestionably to be the proper view with which to regard corporations formed with power to grasp and hold rights in water, a resource which the State seeks to conserve.

The apparently clear intention of the Legislature, as expressed in the above quoted statutes, however, does not furnish an equally clear solution of the question of the status of such corporations, because of their conflicting provisions, as well as of the conflicting constructions placed upon them by the courts as to the effect of their operation; and also because of the apparently antagonistic legislation intended to prevent corporations escaping their supposed duty to pay taxes for the full period of their existence. Thus it is provided by Section 32 of the Act of June 1st, 1889, that "no corporation......made taxable by this act, shall hereafter be dissolved by the decree of any court of Common Pleas, nor shall any judicial sale be valid or a distribution of the proceeds thereof made, until all taxes due the Commonwealth have been fully paid into the State Treasury, and the certificate of the Auditor General, State Treasurer and Attorney General to this effect filed in the proper court, with a proceeding for dissolution or sale."

It is true, of course, that the above quoted provisions of the Acts of 1876, 1889 and 1883 would seem to terminate the existence of a corporation at the end of two years from the date of its incorporation, if the provisions of said acts have not been complied with, and that, therefore, a petition for dissolution would not be necessary; but while this may be the proper construction of the law there is at present no method by which such delinquent corporations can be placed on record as being out of existence. At the same time the provisions of the said Act of 1876, as amended by the Act of 1889, seem to differ materially from those of the Act of 1883, the former declaring that for failure to commence the work within two years from the date of its incorporation, or to complete the same within five years thereafter, the franchise becomes forfeited, the corporation being ipso facto dissolved, and the latter providing that before the corporation becomes dissolved and the franchise reverts to the State, proceedings against it must be instituted by the Attorney General for that purpose. In consequence of these conflicting provisions of the statutory law, conflicting decisions have been reached by the courts. Thus it has been held by the Supreme Court of Pennsylvania, in Commonwealth vs. Lykens Water Company, 110 Pa. 391, that where a charter had been granted to a water company and it had wholly failed to do anything within two years from the date of its letters patent "all its rights and privileges had reverted to the Commonwealth........The limitation of time," say the court, "inheres in the very grant under which the latters patent issue. It is an expressed clause in a contract under which the corporation was created and its charter accepted........When the legislature reserves the right to repeal a charter on the happening of a certain event, it may enact the repeal whenever the event happens without first invoking the judgment of the court. The Act of 1876 did not specifically require any action of the legislature to cause the franchises granted to revert to the Commonwealth; as, then, after the expiration of two years, nothing had been done under the charter to continue its life, all its franchises in equity reverted to the Commonwealth."

This decision was rendered on October 5th, 1885, and, therefore, after the passage of the Act of June 13th, 1883, which seems to provide for such forfeiture only upon proceedings by the Attorney General; yet notwithstanding this fact it was subsequently held by the Court of Common Pleas of Dauphin County in Lebanon Water Company's Petition, 4 Dauph. 228, that before a forfeiture of the charter of a water company, created under the Act of April 29th, 1874, occurs, there must be action by the Attorney General, as provided by the Act of June 13th, 1883.

There is, therefore, under the law, as it exists at present, uncertainty as to whether a water company, which has been granted a charter, but which has wholly failed to do anything within two years from the date of the granting thereof, but against which a judgment of ouster has not been rendered by the courts, has ceased to exist as a corporation; and whether its franchise has, by virtue thereof, reverted to the State.

In addition to what should be the general policy of the State in reclaiming unused water francihses, it is often highly important for the Commission, in passing upon an application for a charter, to consider whether a former charter granted for the same territory, often with an exclusive fanchise, and usually with the right of eminent domain, has life, or whether it has reverted to the Commonwealth.

For these reasons, in accordance with the provisions of Section 3 of the Act of May 4th, 1905, creating this Commission, authorizing and requiring the Commissioners "to procure all data and facts necessary to advise them thoroughly of the situation of the water supply of the State," the Commission has undertaken to ascertain all cases where charters hertofore granted have reverted, or should revert to the Commonwealth for failure to comply with the provisions of the above quoted acts of 1876, 1883 and 1889 with regard to the commencement or completion of their necessary works, but against which no decree of forfeiture or dissolution has been entered.

As a result of these investigations it has been found that in many of the cases where the provisions of the above quoted acts have not been complied with, and particularly in cases where work has not been commenced, or no business has ever been done within two years from the date of the incorporation, the grantees of such charters are desirous of surrendering them to the state, but are prevented from doing so in the manner prescribed by law unless taxes are paid on their capital stock for the two years or more that they have been in existence, on account of the requirements of the above quoted provision of the Act of June 1st, 1889; but this such corporations are, as a rule, unwilling to do, having done no business and made no money. Under these conditions, many such companies desirous of surrendering their franchises, but unwilling to pay their back taxes, which would enable them to procure a decree of dissolution, have filed in the office of the Auditor General a statement, under oath, of the facts, asking to be stricken form the records of that department. To date 197 of such petitions or affidavits have been filed in that department, 153 of which state in general that no organization was effected, no business done or no work of construction of their necessary buildings, works or structures commenced within two years from the date of their letters patent; and 44 of which in general state that the construction of their necessary works, buildings and structures was not completed within five years thereafter, or that at the time of the filing of such petition or affidavit they were doing no business and intended to do no business in the future, and were without property assets or indebtedness.

Table No. 1 and No. 2 give a complete list of such corporations, together with the class to which each belongs, the district which it was authorized to supply and the date of incorporation. In designating the class to which each company belongs, the figures 1, 2 and 3 are used; 1 being "for the supply of water to the public," 2 being "for the supply, storage and transportation of water and water power for commercial and manufacturing purposes," and 3 being for those companies formed under paragraph 18 of Section 2 of the Act of April 29th, 1874, denominated in general as "for the storage, transportation and furnishing of water for manufacturing and other purposes, and for the creation, establishing, furnishing, transmission and using of water power therefrom." In several cases the charters state the purpose to be "for the supply of water to the public, and for the supply, storage and transportation of water and water power for commercial and manufacturing purposes." In such cases the company is stated to belong to both classes 1 and 2.

It will be noted that of these companies 126 in table No. 1 and 37 in table No. 2, or a total of 163, belong to class No. 1, for the supply of water to the public; 13 in table No. 1 and 5 in table No. 2, a total of 18, belong to class 2; while 11 in table No. 1 and 1 in table No. 2, a total of 12, belong to both classes 1 and 2; and but 4 of them, 3 in table No. 1, and 1 in table No. 2, belong to Class 3.

TABLE NO. 1.

Water and water-power companies which have filed affidavits that no organization was effected, no business was done or no work of construction of their necessary buildings, works or structures commenced within two years from the date of their Letters Patent.

Name.	Class.	District.	Date of incorporation.
Allen Water Co.,	1	Allen township, Washington county,	Oct. 25, 1897.
American Spring Water Co.,	2	Lampeter township, Lancaster county,	Aug. 22, 1902.
Amity Water Co.,	1 & 2	Mifflin township, Allegheny county,	Nov. 26, 1900.
Annville Water Company, No. 2,	1	Annville, Lebanon conuty,	Sept. 23, 1889.
Altman Water Co.,	1	Black Lick township, Indiana county,	April 24, 1903.
Armagh Water Power Company,	2	Armagh township, Mifflin county,	Aug. 26, 1901.
Askam Water Company,	1	Warrier Run, Luzerne county,	Jan. 29, 1896.
Baldwin Water Co.,	1	Baldwin township, Allegheny county,	March 9, 1899.
Beechmont Water Co.,	1 & 2		May 17, 1901.
Bessemer Water Co.,	1	Masontown, Fayette county,	Oct. 30, 1901.
Blaidsdall Water Company (The),	1	Bradford township, McKean county,	Feb. 26, 1892.
Blue Mountain Water Supply Co.,	2	Smithfield township, Monroe county,	Sept. 28, 1900.
Borough Water Co.,	3	Montrose, Susquehanna county,	Sept. 24, 1889.
Borough Water Co.,	1	Rochester, Beaver county,	April 8, 1890.
Branch Water Co., (Into which was merged the Penn Run Water Company),	1	Cherry Hill township, Indiana county,	March 18, 1903.
Bridgeville Water Co.,	1 & 2	Upper St. Clair, Allegheny county,	Nov. 26, 1900.
Buckwha Water Storage & Supply Co.,	1	Lower Towamensing township, Carbon county,	Dec. 17, 1901.
Burrell Township Water Co.,	2	Burrell township, Indiana county,	April 2, 1903.
Cocalico Water Co.,	1	Ephrata township, Lancaster county,	Jan. 28, 1892.
California Water Co.,	1	California, Washington county,	Sept. 26, 1894.
Camp Hill Water Co.,	1	Camp Hill, Cumberland county,	April 15, 1895.
Camp Hill Springs Water Co. (a),	1	Camp Hill, Cumberland county,	Oct. 19, 1897.
Cannonsburg Water Co.,	1	Cannonsburg, Washington Co.,	Nov. 13, 1894.
Canton Township Water Co.,	1	Canton township, Washington county,	March 7, 1901.

(a) Two years had not elapsed when affidavit was filed, but since has.

TABLE NO. 1—Continued.

Name.	Class.	District.	Date of incorporation.
Carrick Water Co.,	1 & 2	Baldwin township, Allegheny county,	Nov. 26, 1900.
Centre Water Co.,	1	Centre township, Columbia county,	Nov. 18, 1902.
Citizens Water Co. of Frackville, Pa.,	1	Frackville, Schuylkill county,	May 26, 1902.
Clinton Water Co.,	1	Pine Creek township, Clinton county,	Nov. 8, 1901.
Cold Stream Water Co. (a),	1	Phillipsburg, Centre county,	July 6, 1896.
College Hill Water Co.,	1	College Hill, Beaver county,	Jan. 13, 1897.
Colonia Water Co.,	1	Moon township, Beaver county,	Oct. 22, 1901.
Confluence Water Co.,	1	Confluence, Somerset county,	May 18, 1903.
Conoy Water & Power Company,	2	Conoy township, Lancaster county,	July 17, 1896.
Core Creek Water Power Co.,	2	Yardley, Bucks county,	Jan. 28. 1901.
Cove Creek Water Co.,	2	Penn township, Perry county,	April 14, 1905.
Crystals Springs Water Co.,	1	Austin, Potter county,	May 5, 1893.
Crystal Water Co.,	2		April 24,1893.
Darby Water Co.,	1	Darby, Delaware county,	——— — 1887.
Dauphin Water Co.,	1	Dauphin, Dauphin county,	Feb. 29, 1892.
Deep Creek Water Company (c),	1	Mt. Carmel, Northumberland county,	Nov. 8, 1895.
Duncannon Water Co.,	1	Duncannon, Perry county,	Sept. 24, 1891.
East Harrisburg Water Company,	1	East End, Vil., Swatara township, Dauphin county,	April 15, 1895.
Easttown Water Co.,	1	Easttown township, Chester county,	——— — 1887.
Economy Water Co.,	1	Harmony township, Beaver county,	June 4, 1902.
Edge Hill Water Co.,	1	Springfield township, Montgomery county,	Dec. 24, 1894.
Edgeworth Extension Water Co.,	1	Sewickley, Ohio & Franklin townships, Allegheny county,	Aug. 6, 1900.
Elliott Water Co.,	1	Elliott, Allegheny county,	June 24, 1895.
Enterprise Water Co. of Delaware County,	1	Upper Darby township, Delaware county,	Aug. 6, 1901.
Esplen Water Co.,	1	Esplen, Allegheny county,	June 24, 1895.
Fairchance Water Co.,	1	Fairchance, Fayette county,	May 26, 1893.
Fairmount Water Co.,	1	Red Bank township, Clarion county,	Nov. 19, 1901.
Fairview Spring Water Co.,	1	Palmer township, Northampton county,	May 2, 1900.
Falling Springs Water Co. (b),	1	March township, Luzerne county,	June 25, 1894.
Fayette City Water Co.,	1	Fayette City, Fayette county,	Nov. 15, 1897.
Finleyville Water Company,	1	Finleyville, Washington county,	March, 9, 1903.
Florence Water Co. (c),	1	New Florence, Westmoreland county,	April 1, 1901.
Forest Water Co.,	1 & 2	Croyle township, Cambria county,	Aug. 27, 1901.
Forward Township Water Co.,	1	Forward township, Allegheny county,	Aug. 6, 1902.
Frackville Water Company,	1 & 2		July 22, 1901.
Franklin Extended Water Co.,	1	Franklin Extended, Cambria county,	Feb. 28, 1902.
Galeton Water Co.,	1	Galeton, Potter county,	Jan. 3, 1899.
George's Water Company (b),	1	George's township, Fayette county,	Dec. 5, 1904.
German Township Water Co. (b),	1	German township, Fayette county,	Dec. 5, 1904.
Glen Cairn Water Co.,	1	Allegheny township, Westmoreland county,	Feb. 6, 1901.
Griffin Water Supply Company,	2	Nicholson township, Fayette county,	Oct. 30, 1901.
Groveton Water Co.,	1	Robinson township, Allegheny county,	June 24, 1903.
Homestead Borough Water Co.,	1	Homestead, Allegheny county,	Oct. 15, 1903.
Homestead Water Co.,	1	Homestead, Allegheny county,	April 23, 1889.
Idlewood Water Co.,	1	Chartiers township, Allegheny county,	July 10, 1895
Ingleside Water Co.,	1	Allegheny township, Westmoreland county,	Dec. 23, 1892.
Keystone Water Co.,	1	Harrisburg, Dauphin county,	Feb. 29, 1892.

(a) Two years had not elapsed when affidavit was filed, but since has.
(b) Information under oath contained in tax report.
(c) Information contained in letter to Auditor General.
(d) Affidavit filed by Borough Solicitor.

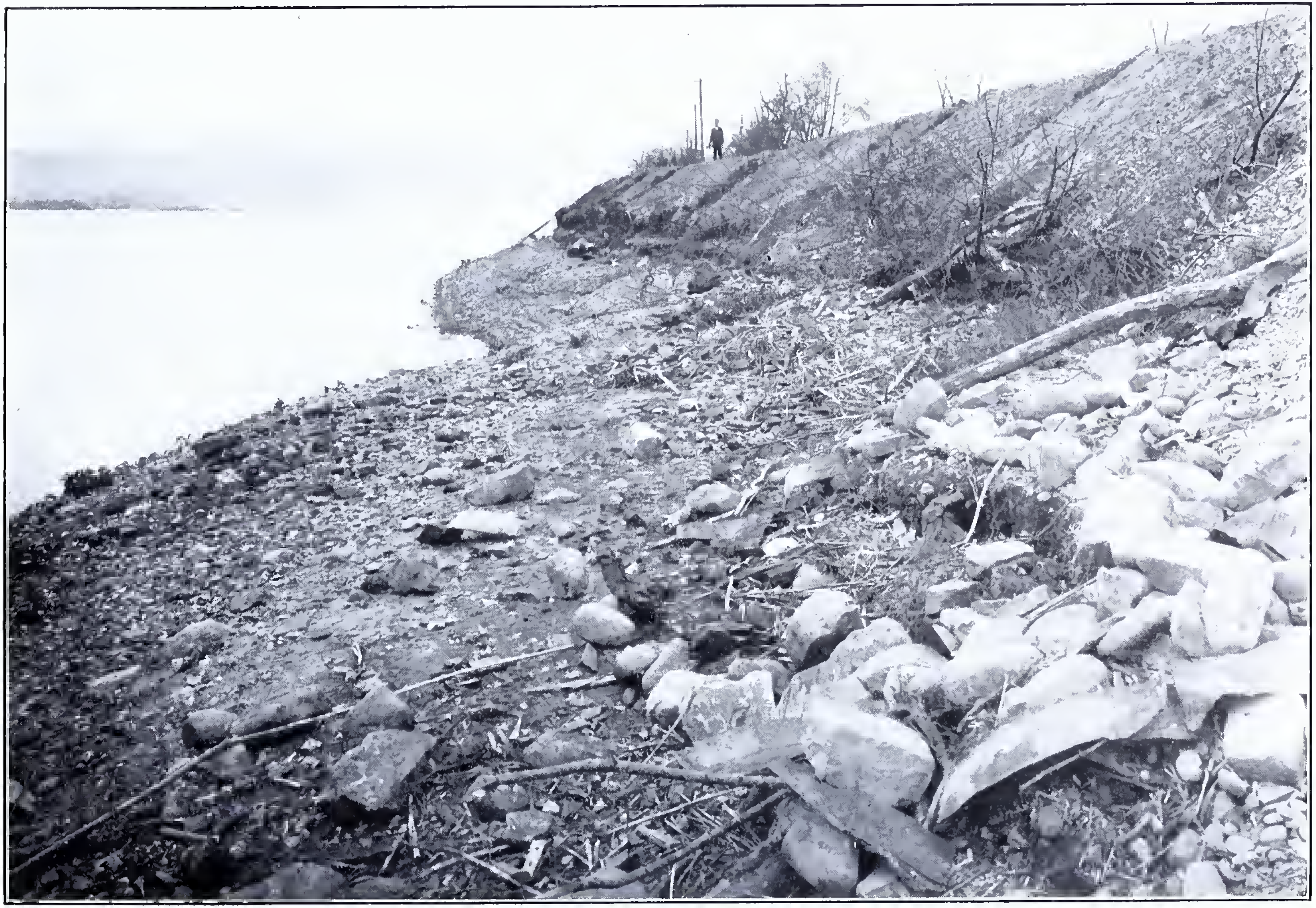
TABLE NO. 1—Continued.

Name.	Class.	District.	Date of incorporation.
Keystone Water Co. of Milton, Pa.,	1	Milton, Northumberland county.	Sept. 28, 1900.
Laurelton Water Co.,	1	Laurelton, Hartley township, Union county,	Aug. 23, 1897.
Logston Water Co.,	1	Aliquippa, Beaver county,	Nov. 25, 1901.
Manor Water Co.,	1	Manor township, Armstrong county,	May 13, 1898.
Mansfield Valley Water Co.,	1	Mansfield Valley, Allegheny county,	March 15, 1887.
Maple Forrest Water Supply Co.,	2	Middle Smithfield township, Monroe county,	Sept. 28, 1900.
Marietta Water Co.,	1	Marietta, Lancaster county,	May 27, 1892.
Marple Water Co. of Delaware Co.,	1	Marple township, Delaware county,	Aug. 6, 1901.
Masontown Water Co.,	2	Masontown, Fayette county,	June 18, 1900.
Masontown Water Supply Co. (a),	3		July 12, 1906.
McKees Rocks Water Co.,	1	McKees Rocks, Allegheny county,	Oct. 29, 1903.
Melboy Water Co.,	1	Hastings, Cambria county,	Aug. 31, 1904.
Mifflin Water Co.,	1	Mifflin township, Allegheny county,	Nov. 30, 1894.
Mine Spring Water Co.,	1	Bridgeton, Bucks county.	Feb. 19, 1896.
Monoca Water Co.,	1	Phillipsburg, Beaver county,	Aug. 12, 1892.
Montgomery & Bucks County Water Co.,	1	Montgomery and Bucks counties,	March 28, 1900.
Mountain View Water Company,	1	Steelton, Dauphin county,	Aug. 16, 1904.
Mountain Water Co. of Luzerne Co.,	1	Pittston, Luzerne county,	Dec. 24, 1886.
Maylan Water Co.,	1	Conemaugh township, Indiana county,	April 24, 1903.
Munhall Borough Water Co.,	1	Munhall, Allegheny county,	Oct. 15, 1903.
Nottingham Water Co.,	1	Nottingham township, Washington county,	March 9, 1903.
New Philadelphia Water Company,	1	New Philadelphia, Schuylkill county,	July 21, 1902.
Newport Water Co.,	1	Newport, Perry county,	Dec. 22, 1890.
Oak Grove Water Co.,	1	Pine Creek township, Clinton county,	July 1, 1901.
Oakdale Water Co.,	1	Oakdale, Allegheny county,	July 25, 1902.
Octorado Water Company (The),	1	Salsburg, Chester county,	April 23, 1890.
Oliver Water Co.,	1	Duquesne, Allegheny county,	Nov. 30, 1894.
Ontario Water Co.,	1	Bridgeville, Allegheny county,	May 20, 1904.
Panther Water Co.,	1	Washington township, Jefferson county,	April 27, 1903.
Peerless Water Co.,	1	Sewickley, Westmoreland county,	Aug. 31, 1893.
Peoples Water Company (The),	1	Tredyffrin township, Chester county,	1887.
People's Water Co., of Coraopolis, Pa.,	1	Coraopolis, Allegheny county,	Dec. 20, 1895.
Peoples Water Co. of Wilkes-Barre, Pa.,	1	Wilkes-Barre, Luzerne county,	May 19, 1891.
Peoples Water & Power Co. of Red Lion, Pa.,	1 & 2	Red Lion, York county,	Feb. 6, 1900.
Peoples Water Storage & Supply Co.,	1 & 2	Greene township, Pike county,	Jan. 25, 1901.
Peters Water Co.,	1	Peters township, Washington county,	March 9, 1903.
Philadelphia Water & Filter Co.,	1	Philadelphia, Philadelphia county,	May 7, 1896.
Pine Grove Water Co. of Schuylkill Co.,	1	Pine Grove, Schuylkill county,	1887.
Portland Water & Power Co.,	3	Northampton county,	Feb. 9, 1904.
Provident Water Co.,	1	Rochester, Beaver county,	April 4, 1899.
Pure Water Supply Company,	2	White Deer township, Union county,	May 18, 1900.
Pure Water Supply & Transportation Co.,	1 & 2	Philadelphia, Philadelphia county,	July 12, 1899.
Racoon Water Co.,	1	Aliquippa, Beaver county,	Dec. 9, 1901.
Ridley Township Water Co.,	1	Ridley township, Delaware county,	Nov. 18, 1890.
Rittersville Water Co.,	1	Hanover township, Lehigh county,	July 12, 1899.
Rockville Water Co.,	1	Harrisburg, Dauphin county,	May 28, 1898.
Rostraver Water Co.,	1	Rostraver township, Westmoreland county,	July 28, 1902.
Saltsburg Water Co.,	1	Saltsburg, Indiana county,	Jan. 3, 1889.

TABLE NO. 1—Continued.

Name.	Class.	District.	Date of incorporation.
Scotia Water Co.,	1 & 2	Jefferson township, Allegheny county,	Nov. 26, 1900.
Sheraden Water Co.,	1	Sheraden, Allegheny county,	June 24, 1895.
Shinglehouse Water Co.,	1	Shinglehouse, Potter county,	May 13, 1902.
Shippensburg Water Co.,	1	Shippensburg, Cumberland county,	1885.
Silver Springs Water Co. (c),	1	Mechanicsburg, Cumberland county,	April 23, 1895.
Slaters Water Co. of East Bangor,	1	East Bangor, Northampton county,	July 17, 1899.
Snowden Water Co.,	1 & 2	Upper St. Clare township, Allegheny county,	Nov. 26, 1900.
Solomon Run Water Co.,	1		Oct. 28, 1901.
Souderton Water Co.,	1	Souderton, Montgomery county,	Oct. 11, 1895.
South Buffalo Water Co.,	1	South Buffalo township, Armstrong county,	July 14, 1898.
South Side Spring Water Co.,	1	Palmer township, Northampton county,	Oct. 31, 1896.
Speers Water Co.,	1	Speers, Washington county,	Oct. 25, 1897.
Spring Water Co., of Hopbottom,	1	Hopbottom, Susquehanna county,	Nov. 9, 1899.
Steelton Water Co.,	1	Steelton, Dauphin county,	Feb. 29, 1892.
Susquehanna Water Co. (The),	1	Plains township, Luzerne county,	Jan. 4, 1893.
Swatara Water Co.,	1	Swatara and Lower Swatara townships, Dauphin county,	Oct. 11, 1898.
Taxpayers Water Co.,	1	Carlisle, Cumberland county,	June 16, 1899.
Throop Water Co. (The), (a),	1	Dickson City, Lackawanna county,	Nov. 25, 1892.
Union Township Water Co.,	1	Union township, Washington county,	March 9, 1903.
Upper Merion Water Company,	1	Upper Merion township, Montgomery county,	1887.
Valley Supply Water Co.,	1	Carbondale, Lackawanna county,	Aug. 11, 1887.
Vanport Water Co.,	1	Borough township, Beaver county,	Feb. 26, 1902.
Wallenpaupack Water Co.,	1	Hawley, Wayne county,	Oct. 15, 1897.
Watersburg Water Co.,	2	Menallen township, Fayette county,	Nov. 18, 1903.
West Easton Water Co.,	1	West Easton, Northampton county,	May 2, 1900.
West Homestead Water Co.,	1	West Homestead, Allegheny county,	Oct. 15, 1903.
West Milton Water Co.,	1	Kelly township, Union county,	Sept. 28, 1900.
West Newton Water Co.,	1	West Newton, Westmoreland county,	Jan. 19, 1898.
West Side Water Co. (c),	1	Allen township, Washington county,	Nov. 21, 1899.
White Marsh Water Co.,	1	White Marsh township, Montgomery county,	Dec. 24, 1894.
Whitney Water Co.,	1	Unity township, Westmoreland county,	Feb. 7, 1898.
Williamsburg Water Co.,	1	Williamsburg, Blair county,	Dec. 19, 1895.
Woods Water Co.,	1	Crafton, Allegheny county,	July 1, 1895.
Youngsville Borough Water Co.,	1	Youngsville, Warren county,	July 15, 1889.

(a) Two years had not elapsed when affidavit was filed, but since has.
(c) Information contained in letter to Auditor General.



Susquehanna river bank at Harrisburg—Showing effect of a 16.5 ft. flood.

TABLE NO. 2.

Water and water-power companies which have filed affidavits that they have failed to complete the construction of their necessary works, buildings and structures, or that they were at the time of filing of the affidavit doing no business and did not intend to do business in the future, and were without property, assets or indebtedness.

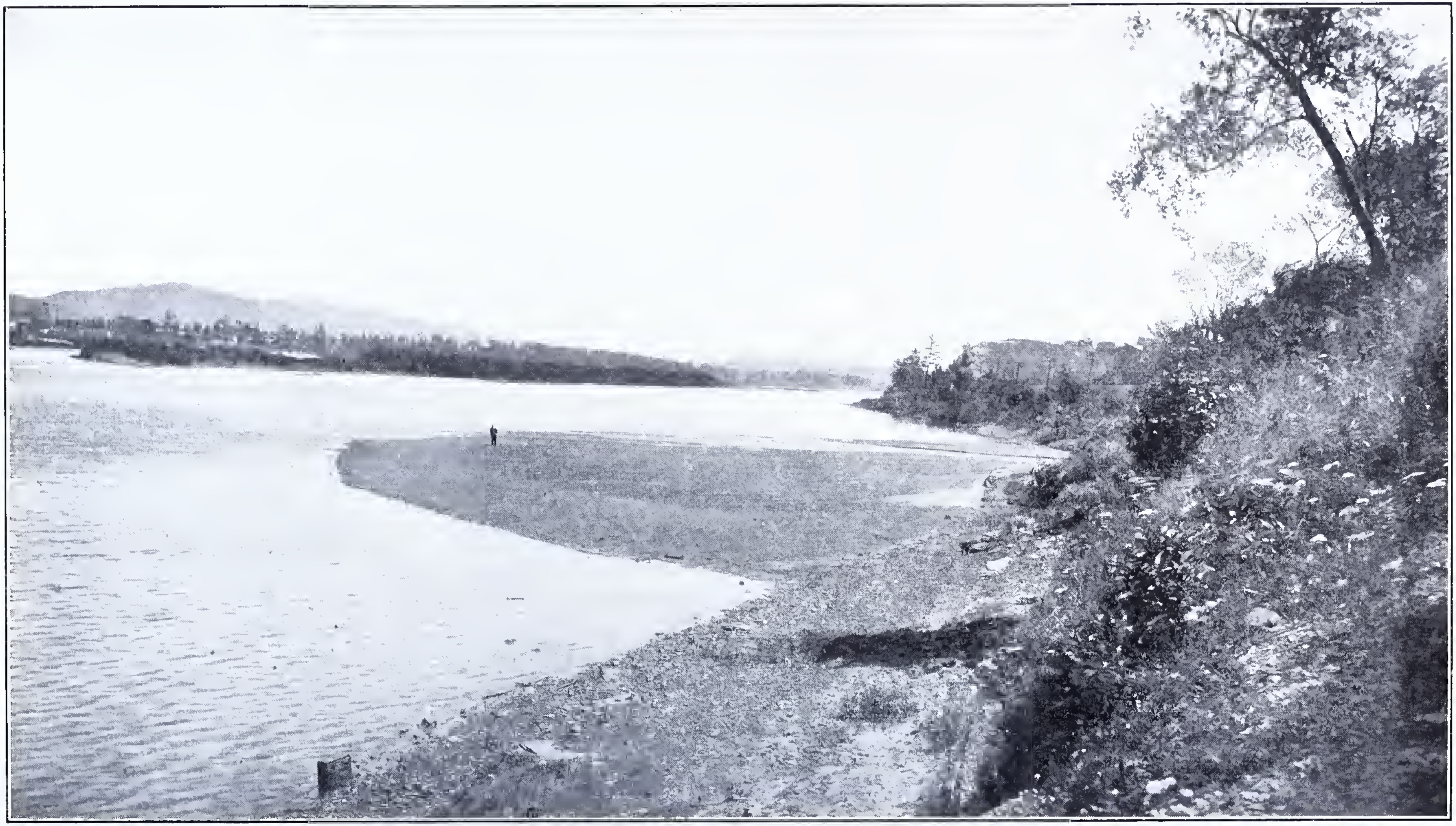
Name.	Class.	District.	Date of incorporation.
Alliquippa Water Co.,	1	Alliquippa, Beaver county,	Aug. 12, 1901.
Baden Water Co.,	1	Baden, Beaver county,	March 31, 1902.
Bolivar Water Co.,	1	Boliver, Westmoreland county,	Aug. 10, 1887.
Chester Creek Water Co.,	1	Middletown township, Delaware county,	July 16, 1902.
Chester Creek Pure Water Co.,	1	Aston township, Delaware county,	July 16, 1902.
Coraopolis Water Company (The),	1	Coraopolis, Allegheny county,	March 3, 1890.
Deven Water Co.,	1	Easttown township, Chester county,	April 13, 1893.
Duquesne Water Co.,	1	Duquesne, Allegheny county,	June 17, 1892.
Elm Water Co.,	1	Lower Merion township, Montgomery county,	April 13, 1893.
Fairfield Water Co.,	1	Fairfield township, Westmoreland county,	Aug. 10, 1887.
Falls Creek Water Company,	1	Falls Creek, Clearfield county,	Nov. 12, 1894.
Granite Water Co. (The),	1	Butler township, Schuylkill county,	July 12, 1892.
Haverford Water Co.,	1	Haverford township, Delaware county,	Jan. 4, 1886.
Haverford Water Co.,	3		Nov. 4, 1886.
Irwin Water Co.,	1	Irwin, Westmoreland county,	Nov. 3, 1883.
Keystone Water Co.,	1	Plains township, Luzerne county,	Oct. 15, 1888.
Lackawaxen Water Power Co.,	2	Pike county,	May 21, 1901.
Lower Merion Water Co.,	1	Lower Merion township, Montgomery county,	June 4, 1886.
Matamoras Water Co.,	1	Westfall township, Pike county,	May 24, 1898.
Mauch Chunk Water Power Co.,	2	Carbon county,	April 22, 1901.
Midway Water Co. (a),	1	Midway, Washington county,	Nov. 26, 1904.
Mill Hall Water Co.,	1	Lamar township, Clinton county,	June 27, 1898.
Millbrooks Water Co.,	1	Pittston township, Luzerne county,	Oct. 22, 1888.
Millbrook Water Co.,	1	Haverford township, Delaware county,	April 13, 1893.
Miners Mills Water Company,	1	Miners Mills, Luzerne county,	Dec. 23, 1890.
Mount Pocono Water Company,	1	Pocono, Monroe county,	March 8, 1895.
Neville Island Water Company,	1	Neville township, Allegheny county,	March 29, 1894.
Paupack Water Co.,	1 & 2	Wayne county,	Nov. 27, 1899.
Peltzonia Water Co.,	1	Stewardson township, Potter county,	June 11, 1901.
Peoples Power & Water Company,	2	Fairview township, York county,	June 6, 1900.
Radnor Water Co.,	1	Radnor township, Delaware county,	Jan. 4, 1886.
Rush Township Water Company,	1	Rush township, Centre county,	June 27, 1901.
Schuylkill Water Co.,	1	Philadelphia,	Sept. 10, 1889.
Skippack Water Co.,	1	Lower Providence township, Montgomery county,	April 13, 1893.
St. Clair Water Company (The),	1	St. Clair township, Allegheny county,	June 27, 1892.
St. Davids Water Co.,	1	Radnor township, Delaware county,	April 13, 1893.
Stafford Water Co.,	1	Tredyffin township, Chester county,	April 13, 1893.
Susquehanna Water Co. (The),	1	----------	Sept. 14, 1885.
Valley Forge Water Co.,	1	Upper Merion township, Montgomery county,	April 13, 1893.
Valley View Water Co.,	1	Valley View, Schuylkill county,	1883.
Warrior Run Water Co.,	1	Warrior Run, Luzerne county,	Jan. 16, 1896.
West Susquehanna Water Power Company,	2	Clearfield county,	April 29, 1901.
Wyoming Borough Water Co.,	1	Wyoming, Luzerne county,	1887.
Yellow Creek Water Power Co.,	2	Bedford county,	July 20, 1900.

(a) Information contained in letter to Auditor General.

The above tables include only those companies which have placed themselves on record as being out of existence and have expressed a desire to have their charters revert to the State. Many other companies, however, which have failed to commence business or to begin or complete their work within the time required by law, have done nothing in the way of declaring their intention to abandon the enterprises and forfeit their charters, and many of these charters are being held for speculative purposes. The Commission has undertaken to determine the facts with regard to such companies by counties, but at this time the work is not complete. Of the 67 counties in the State the records of 43 are complete, and these show that out of a total of 995 water and water power companies incorporated prior to the creation of this Commission, only 581, or 58.4 per cent. were found to be in actual existence, and 414, or 41.6 per cent. have not done or are not now doing business.

In this connection a comparison of the figures relating to companies formed since the creation of the Commission with those formed prior thereto, is interesting. In all 90 companies have been incorporated with the approval of this Commission up to January 1st, 1909. Of these 49, or 55 per cent., are now in actual operation, and 13, or 14 per cent., have commenced the construction of their works, making a total of 62, or 69 per cent. of the 90 companies, which may be regarded as active. It must be borne in mind, however, that of these 90 companies only 36 were formed prior to January 1st, 1907, and of this number 27, or 75 per cent., are either now operating or have commenced the construction of works, leaving 9, or 25 per cent., which have failed to comply with the law, whose charters should be revoked. Of the remaining 54 companies incorporated between January 1st, 1907, and January 1st, 1909, sufficient time has not yet elapsed to determine the status.

Table No. 3 exhibits, as far as can be shown, the present status of companies incorporated between may 4th, 1905, the date of the passage of the act creating the Commission, and January 1st, 1909.



Delta of culm from coal washery—North Branch Susquehanna river above Wilkes-Barre.

TABLE NO. 3.

Present Status of Water Companies Incorporated May 4th, 1905, to January 1st, 1909.

Year.	Number incorporated.	In Operation.		Under Construction.		No Work Done Toward Construction of Plant.	
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
1905 (May to Dec., inclusive),	6	4	66	0	0	2	33
1906,	30	17	57	6	20	7	23
1907,	33	20	61	3	9	10	30
1908,	20	8	40	4	20	9	45
Total,	89	49	55	13	14	28	31

It will thus be seen, as indicating the effectiveness of the legislation creating this Commission in preventing speculation in water franchises, that as against an average of 58.4 per cent. of the total number of companies incorporated in 43 counties before June, 1905, which are active, 75 per cent. of the companies formed between June, 1905, and January 1st, 1907, are active. As against the formation of an average of about 120 companies per year for the five years immediately preceding the passage of the Act of May 4th, 1905, an average of but 26 companies per year have been formed for the three and one-half years since the Commission came into existence, a difference of 94 companies per year. One hundred and seventy-five companies were formed in the year and a half previous to the creation of the Commission, and by using the above ratio of 58.4 per cent. in determining their status, we find that 73 would not have used the privilges granted to them; while of the companies formed in the year and a half subsequent to the creation of the Commission, only nine are not active.

This difference would seem to indicate that the greater care exercised in granting charters, since the creation of the Commission, has resulted in the prevention of the formation of speculative corporations.

This Commission believes that the rights granted all water and water power companies being of great value to the State, should not be allowed to remain in the hands of the grantees unused, and that such grantees should not only be permitted, but should be compelled to surrender them. What appears to operate against the voluntary surrender of such franchises in a great many cases is the provision of the said Act of June 1st, 1889, preventing the voluntary dissolution of any corporation until all of its back taxes have been paid. While this Commission believes that it is of the utmost importance to require corporations to live up to their obligations in the matter of paying state taxes, it, nevertheless, believes that it is of still greater importance that the State re-claim valuable franchises heretofore granted rather than compel the grantees against their wills to retain them. In most cases the capitalization of such water companies, as have never operated under their charter, is small, and the amount of tax which the State could collect from them is insignificant in comparison with the value of the rights which they hold and which should revert to the State.

In furtherance of the reclamation of such franchises, therefore, this Commission would recommend:

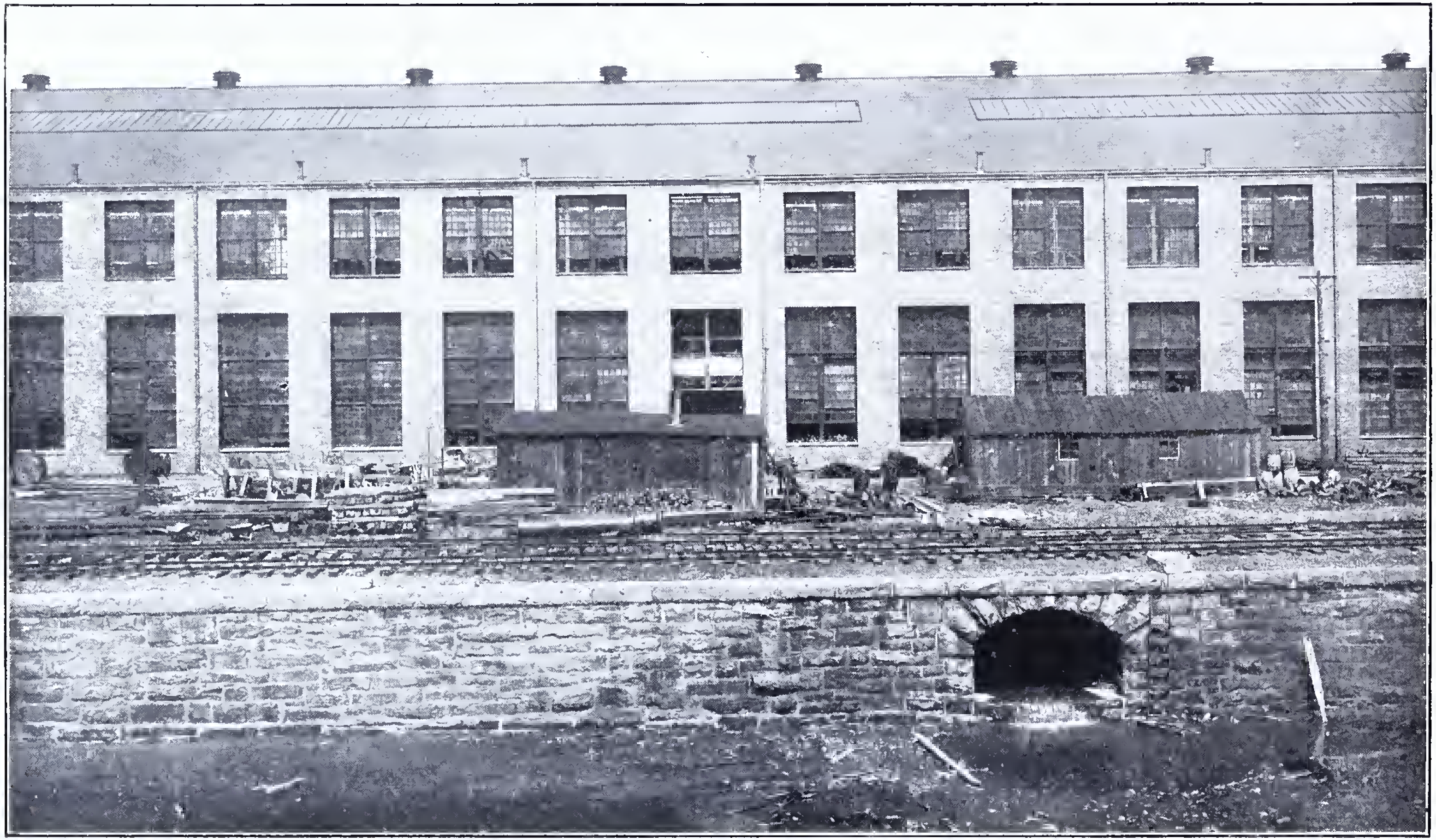
First: That the provisions of law contained in the Act of June 1st, 1889, requiring all taxes due the Commonwealth to be paid before a decree of dissolution can be entered, be amended, or changed, with regard to water and water power companies, so as to allow companies which have never made use of their franchises, and which do not intend to do so, to become dissolved and allow their franchises to revert to the State without the payment of such taxes.

Second: That water or water power companies which have not commenced the construction of their works, or commenced business within two years from the date of their letters patent, or have not completed such works within five years thereafter, be allowed, upon filing a statement of such facts, under oath, with this Commission, to become dissolved with the same effect as though a decree of ouster had been entered by court; and also that the Auditor General be authorized and required to certify to this Commission all affidavits or petitions of this nature which have heretofore been filed with him, and that such corporations be similarly regarded as dissolved.

Third: The enactment of a law authorizing this Commission, upon the determination of the fact of failure of any water or water power company subsequently incorporated to commence or complete the construction of their works within the time required by the existing law, to revoke such charter.

Fourth: The repeal or modification of the 5th Section of the Act of June 13th, 1883, so that no proceedings by the Attorney General would be necessary to terminate the corporate existence of any water or water power company which has failed to commence business within two years from the date of its incorporation.

Fifth: The amendment of the existing law providing for the extension by the Courts of Common Pleas of the period of time within which the plant and works of water companies must be completed so as to require the approval of this Commission to all such extensions.



Ashlar masonry retaining wall along Turtle Creek, Allegheny county.

CHAPTER 2.

OBSTRUCTIONS TO STREAMS AND METHODS OF BANK PROTECTION.

Previous to the passage of the Act of May 28th, 1907, involving the construction of encroachments in or along the streams of the Commonwealth, the waterways were unprotected by State supervision, their banks being encroached upon and their channels obstructed without regulation. If damage to other interests resulted from these works, recourse was had to the courts, and where injury was proved, compensation was made; but the courts necessarily considered such cases merely from the standpoint of the plaintiff and defendant and not with respect to the effect of such works upon the regimen of the stream. The latter influence is studied by the Commission and its decisions may, therefore, sometimes approve the construction of works, possibly injurious to individual or corporate interests, although beneficial, or at least not detrimental to the stream; but recognizing the right of injured parties to appeals to the courts for compensation for any damage inflicted, the Commission gives its approval with the proviso that full lawful authority exists for the construction of the proposed works.

Most of the applications received have been for the construction of bridges and dams, for the extension of river banks, usually for railroad purposes, or for the dumping of waste from industrial works. In cases where improvements or no apparent detriment to the stream will result, applications have been approved as made, while in other cases restrictive conditions have been imposed. In approving the construction of a bridge to replace an existing structure, the removal of the piers of the adjacent old bridge was required, in order that the channel should not be obstructed. A concrete arch bridge was approved on condition that the material excavated from the extensive pier foundations be deposited outside the high water channel. Applications for bank extensions have been approved on condition that the face of the slope be protected from erosion, by riprap or other suitable form of bank revetment.

The majority of the applications to the Commission, made in accordance with the Act of May 28th, 1907, come as a result of notification by the Commission that such works are unlawful and are to be discontinued, pending the approval of an application. Violations of the act generally come to the attention of the Commission through protests or the reports of its employes, and but rarely are applications made without such notification. The difficulty experienced under the present system of successfully controlling encroachments and obstructions in streams, leads the Commission to feel that a systematic canvas of the State is essential to effect proper stream protection, but owing to its many other duties and the limited funds at its disposal, it has been impossible to enforce the Act in as systematic a manner as desired. Many obstructions are placed in ignorance of the existence of such a law, while it seems that many other transgressors of this Act do not realize that it applies to temporary as well as to permanent structures, and instances are numerous, of parties making injurious fills of culm, ashes, cinder and other debris, believing applications unnecessary, as much of the material would be washed out and away during freshets. There is apparently no thought of the ultimate deposit of this material further down the stream. Thus it is that the stream banks along many of the municipalities of the Commonwealth have been used for general dumping purposes, disfiguring the waterfront, narrowing the channel, and adding to the suspended matter carried during freshets.

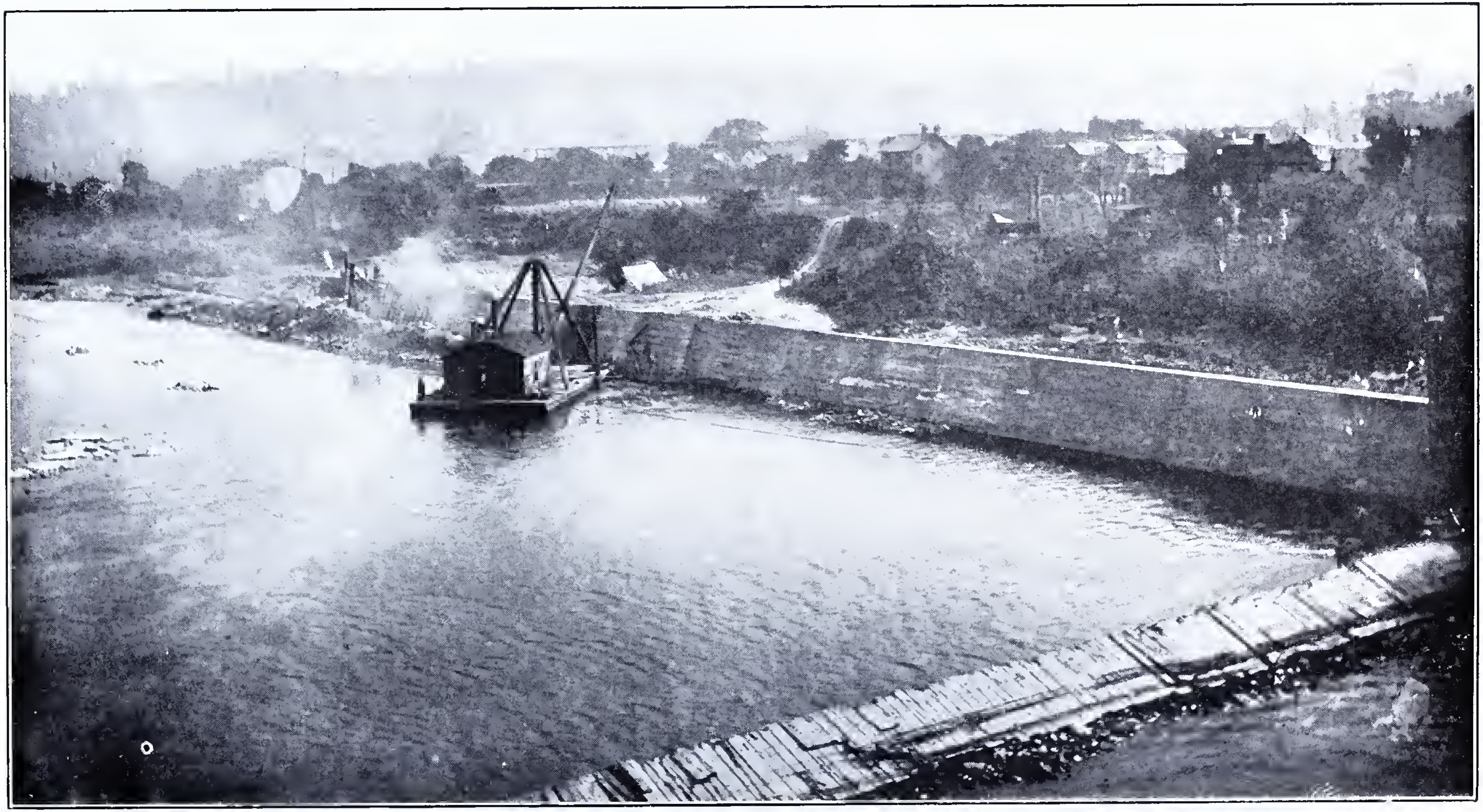
The prevention of this form of encroachment is both reasonable and desirable, and it is therefore recommended, in order that there may be no further misunderstanding, that the Act of May 28th, 1907, be amended so as to definitely name such deposits of ashes, slag, culm, and all other wastes and debris, whether placed permanently or temporarily.

The act gives the Commission jurisdiction only over streams which have been declared public highways by the Legislature, but on account of the silting up of the larger streams, caused by material washed down from the smaller tributaries, the Act should be amended so as to extend the jurisdiction of the Commission to cover all the streams in the Commonwealth.

CONCURRENT JURISDICTION OF STATE AND NATIONAL GOVERNMENT.

The United States War Department exercises supervision over certain portions of some of the larger streams of the state, and has improved navigation thereon for considerable distances. In most cases where such supervision is exercised, harbor lines have been established, beyond which encroachments are prohibited. The following table gives as nearly as can be obtained, the limits of active Federal supervision in Pennsylvania:

River.	Extent of U. S. Supervision.
Delaware,	Mouth to Morrisville, opposite Trenton, N. J.
Schuylkill,	Mouth, through City of Philadelphia.
Ohio,	State line to Pittsburg.
Monongahela,	Mouth to Pennsylvania-West Virginia Line.
Youghiogheny,	Mouth to West Newton.
Allegheny,	Mouth to Tarentum.



Gravity concrete wall for bank protection at West Bridgewater, Beaver county, Pa.
(The area behind wall, extending to the high bank, was filled in.)

In numerous instances a misunderstanding seems to have existed among those making encroachments as to the jurisdiction of the Water Supply Commission over the portions of the streams in the above list. In such cases the approval of the United States War Department and of this Commission is necessary before any changes in the current, course, or cross-section can be made, the approval of one organization alone being insufficient. The Federal authorities necessarily examine such applications largely in relation to their effect upon present and future navigation, while this Commission determines their effect upon the flood carrying capacity, addition of silt, deflection of the current, etc., as well. The Federal authorities and the Commission are working together in the endeavor to improve the condition of the stream channels and the former organization, dealing as it does usually with the lower reaches of the rivers, looks to the Commission for assistance through their supervision of conditions further up.

BRIDGES.

The larger streams have in few cases, been reduced in section by bridges to such an extent as to seriously impede flood flow, although some structures have not been built out of reach of the highest floods, for many have been carried out or damaged during freshets, as evidenced by the expenditures of the Commonwealth in their repair and rebuilding.* New bridges are as a rule placed higher above normal stream level than the older ones, and the plans for such structures, when presented to the Commission, are examined with this in mind. Some railroad companies are replacing truss by masonry arch bridges, and in their design it is necessary to compute carefully the waterway of the arched openings requisite for the passage of floods. In the case of truss bridges which are built too low the principal danger lies, not in their causing backing up of the water behind them, (although the trusses catch floating logs, timbers, ice, trees, etc., and sometimes form temporary dams which raise the elevation of the water), but in the actual damage to the structure itself, and, in case of failure, to other bridges below caused by the floating wreckage. The old wooden bridges, many of which still cross our streams, are particularly menacing to structures below, as the entire superstructure may float down on the flood and destroy other bridges. On smaller streams where the flood conditions are not so well known or appreciated, bridges and culverts have been built offering serious obstruction to the passage of freshet stages, and it is expected that data which the Commission has collected and is adding to, regarding the volume of stream flow during floods, will as published, assist in the better design of such structures.

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*1907 Report, Water Supply Commission Pennsylvania, page 80.

RIVER BANKS.

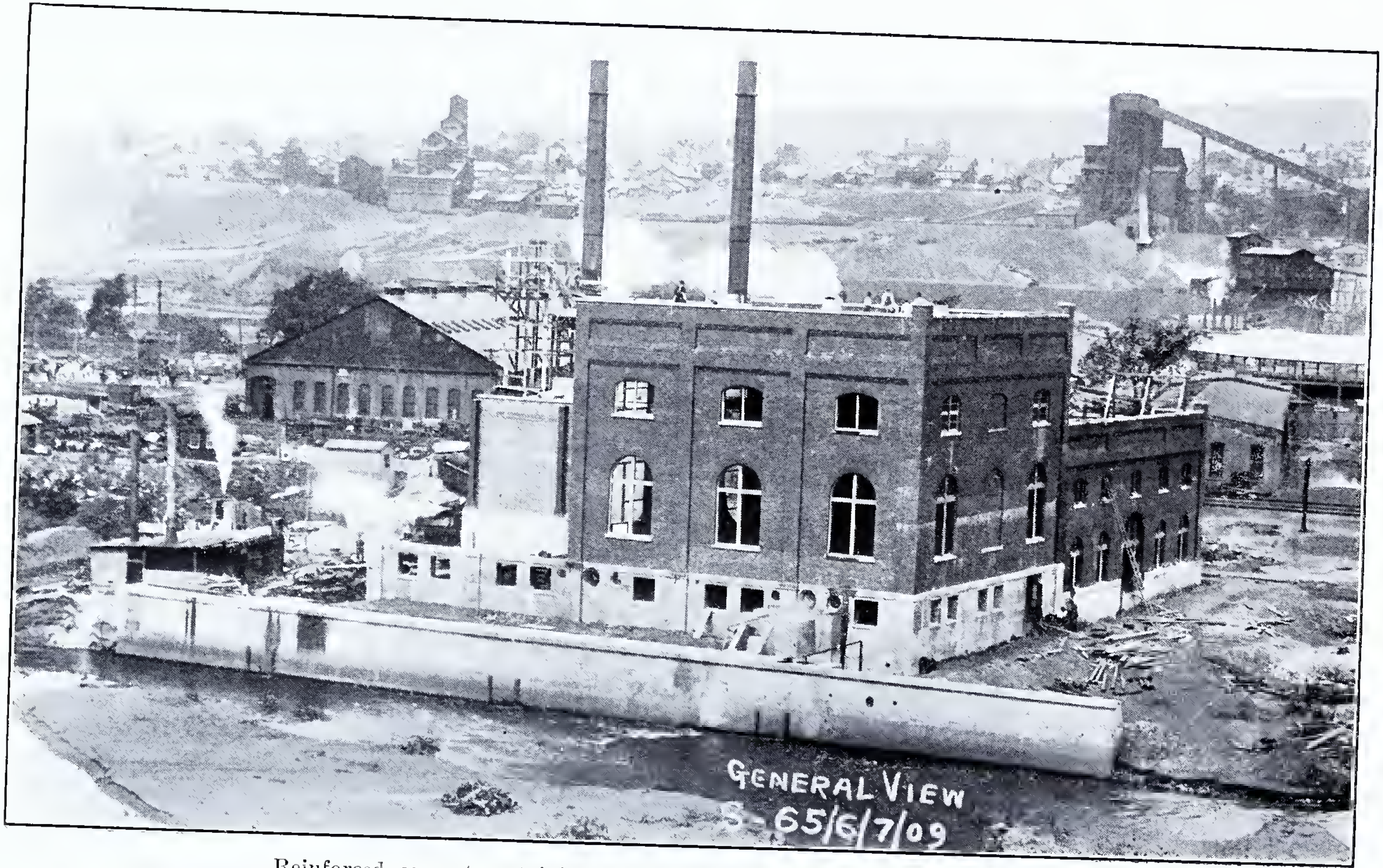
The class of obstruction upon which the Commission is most frequently called to pass, is the reduction of the cross-section by fills for various purposes. Applications from railroad companies involving the extension of the banks into the stream in order to provide additional track room or reduced curvature, and applications from manufacturing companies, for permission to dump waste products over the river bank, have come before the Commission during the year. Such fills when made of earth, ashes, fine cinder, etc., if not compacted and faced with some solid material, undermine and wash away, and in the case of fills for construction purposes, this material is replaced and the process repeated within a short period.

When proposed fills are to be located at points in the channel where the entire present cross-section is needed to carry the floods without overflow, or where a deflection of the current likely to cause damage below will probably result from the proposed obstruction, the disapproval of the work is considered advisable. Many encroachments involving the extension of river banks, however, are beneficial if the slopes are paved, for they may and often do involve the straightening of the channel, the filling out of fissures and the confining of the stream at wide parts where sedimentation is encouraged, thus tending toward a more efficient and permanent section. It has thus become evident both for permanency of work, and for protection against the deposit of sediment by the streams, that bank protective measures are essential.

The Commission is convinced that one of the menaces to the streams is the constant and increasing deposit in their beds of material washed from their banks and watersheds, from those of their tributaries or deposited therein from industrial works. The loose fills, which have heretofore been built along the rivers, and the great masses of refuse from mines, quarries and various industrial plants, dumped into the channels, when washed away, are deposited at points where the current slackens. In this way the levels of the stream beds are raised, and their slopes reduced, while at the same time their width is decreased by encroachments along their banks. Thus in three ways is the capacity for passing flood discharge reduced, the consequence being higher freshet stages and increased damage to bordering property.

CULM.

Perhaps the worst examples of silt filled channels are to be found in the anthracite coal region, where succeeding freshets wash the culm and fine coal from the waste banks which border the streams. Even in times of normal and low water this process is taking place, for many of the washeries direct their effluents, containing a large per-



Reinforced concrete retaining wall along Lackawanna river at Scranton.

centage of solid particles of culm, sand and coal, into the streams to be carried along by the current until the lessened velocity at some point causes its deposition. This usually takes place first and in largest quantity at the mouths of the small streams which receive their washings, when the rapid current usually prevalent in the smaller streams is checked by its meeting with the lesser velocity in the larger. The remainder is carried along by the larger stream to be deposited at its junction with one still larger or behind bridge piers, above dams or rapids, or wherever the current may be reduced. In time of flood these culm bearing streams overflow their banks and upon receding leave deposits of culm, sand and coal upon the meadows and pasture lands, often ruining them for agricultural use. This damage has been the frequent cause of legal actions, resulting often in the award of damages to the land owners.

The North Branch of the Susquehanna river below the mouth of the Lackawanna has been silted up in this manner, at some points as much at 12 feet in depth, while all the way down to Sunbury, and on the Susquehanna below Harrisburg, are deposits of this material, originally poured into the North Branch and into the main stream from the Lackawanna river, Nescopeck, Catawissa, Shamokin, Mahanoy, Mahantango, Wiconisco, and other smaller streams. Into the Schuylkill and Lehigh rivers pour likewise vast quantities of this material, to be deposited behind the navigation dams, and above rapids, gradually filling up the river beds and raising the flood crests. Conditions somewhat similar but not so aggravated exist in the bituminous mining districts.

While appreciating the serious conditions existing upon important streams in the Commonwealth due to the operation of coal mines, the Commission realizes the great importance of the coal industry to the state, and the necessity of considering the problem so as to give the greatest protection to streams without imposing unnecessary burdens upon the coal producers. As in the case of other obstructions, the owner of land damaged by the accumulation of coal waste or by changed stream channels, has legal recourse, but the stream discharge and the condition of the lower channels, can be considered and protected by the state alone, and the amelioration of these conditions is receiving careful consideration.

The investigations of the Commission have given it extended acquaintance with the condition of the banks of Pennsylvania streams, and increased familiarity with this problem has led to the belief that steps must be taken for their better protection against erosion along both large and small waterways. By insisting upon the proper protection of stream banks, in approving applications, much benefit is being obtained, and it is believed that a discussion of the methods of bank protection as practiced in Pennsylvania will lead to beneficial results.

METHODS OF BANK PROTECTION.

That the older nations of Europe have appreciated the necessity of protecting the banks of their rivers, is shown by the following quotation from a paper presented at the Convention of the Lakes-to-the-Gulf-Deep Waterway Convention, in October, 1908.*

"The greatest rivers in France, Germany and the adjacent countries, are small when compared with the Mississippi, yet they have done wonders in their development. They have compelled them to flow in fixed channels along the routes established by the engineers. Their floods are confined and controlled between fixed barriers so well constructed that they practically never break. Their banks are so well paved that they contribute little or nothing to the load of silt brought down by the smaller tributaries."

Isolated portions of river bank have been protected in Pennsylvania, the work having been done by State, municipal and corporate bodies, but few of these works are extensive, and they have not been built for the purpose of improving the rivers, but as protections against them. A large amount of this class of work has naturally been done by the railroads, whose lines generally follow the water courses, but in proportion to the amount of exposed river bank, very little has been done by these corporations.

The methods of bank protection as practiced in this state may be divided, according to material or design, into six (6) classes as follows:

1. Masonry walls.
2. Riprap paving.
3. Concrete facing.
4. Loose stone filling.
5. Slag walls.
6. Timber cribbing.

MASONRY WALLS.

Masonry walls are the most prevalent type of river bank protection in Pennsylvania, and such walls have been more frequently built of stone, either rubble or ashlar, than of concrete, but the latter material is now being used quite widely. Where streams pass through thickly inhabited districts, towns or cites, they are frequently walled along both banks, which are by this means effectively protected from washing. Rubble walls, being usually inexpensive, have been extensively used, and more costly walls of cut stone have been built where permanence and esthetic features are desired. Among the older works of this character are the walls at the dams and locks of the State and corporate canals, a fine example being

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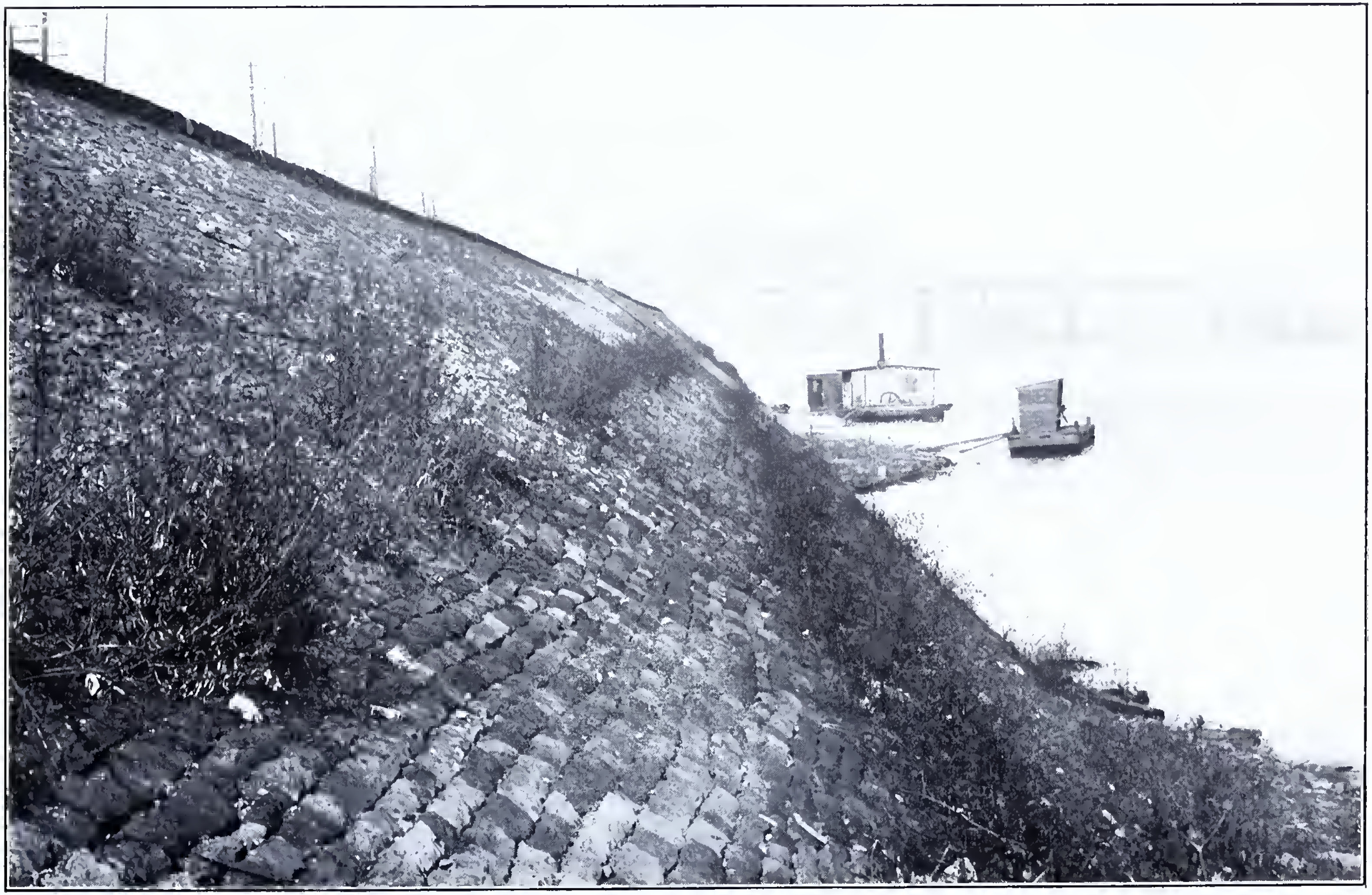
*J. A. Ockerson, American Representative, 11th International Congress of Navigation at St. Petersburg, June, 1908.



Riprap paving for bank protection by P. & L. E. R. R. Co., on Ohio river, west of Pittsburg.

that built along the Susquehanna river, at Clark's Ferry, 15 miles above Harrisburg. This wall is 2.5 miles long and 15 to 20 feet in height, was built over 70 years ago of dry masonry and is in good condition today. Its top is three feet in thickness and its base 6 to 8 feet. This type of wall protection was constructed by the Pennsylvania Canal Commissioners for the inlets from the river at the Nanticoke and Mifflintown dams, and at other exposed situations. "This construction served the requirements to protect the canal from damage of ice and other river floods, generally speaking, and when the wall suffered occasional damage the necessary repairs could be readily supplied."* Another example of a first-class ashlar wall is that bordering both banks of Turtle creek, Allegheny county, where that stream passes through the Borough of East Pittsburg.

In recent years concrete walls seem to have in large measure displaced the construction of ashlar walls, being usually less costly and as durable. At West Bridgewater, Beaver county, The Water Supply Commission built, under the Act of June 13th, 1907, P. L. 553, during the summer and fall of 1908, a concrete wall of the gravity type, where the bank of the Beaver river had, from the abutment of the lower dam, to the mouth, been cut back in places 150 feet, the main object of the work being to reclaim the land and to restore the water front for wharves and landings. The bank is about 30 feet above normal water and is composed of loam, clay and gravel, but as the river rises during extreme floods to a depth of several feet over most of the town, this work was not intended to prevent overflow at such times. The aim was to prevent the undermining of the bank at usual high stages, and to permit of the eventual reclaiming of the lost ground. The object being to regain the water front street, and still not to run out a long sloping bank, it seemed wise to build a retaining wall along the water's edge, filling in the land behind it. The wall is 640 feet long and 15 feet high, the foundation being partly on rock and partly on gravel. It is 7 feet wide at base and 2 feet wide on top, the north end joining the dam abutment. Sufficient fill to bring the whole area behind the wall up to the elevation of its top was placed, the funds appropriated not being sufficient to raise this area to the general level of the surrounding territory, but it can, under proper direction, be used for dumping purposes and soon be brought to the requisite height. The wall was built by contract, of boulder concrete, costing $5.00 per cubic yard, and the filling, also by contract, consisted of gravel dredged from the river and blast furnace slag, costing $0.40 per cubic yard. The wall itself cost $18.50 per linear foot.

Another example of this form of structure is the wall on the Monongahela river, protecting the property of the National Tube Co., at

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*T. T. Wierman, President of the Pennsylvania Canal Company.

McKeesport. This wall was built on the "cost plus a fixed sum" basis at an expense of $174,962, including general expenses, or at the rate of $10.50 per linear foot, the actual cost per cubic yard of concrete being $5.69.

The wall recently built by the Scranton Railways Co., along the North side of the Lackawanna river at Scranton, is an interesting example of a reinforced concrete wall, which besides protecting the bank, is used for carrying conduits, intakes, etc. It is 180 feet long and from 17 to 19 feet high, rests on a rock foundation, and is similar in section to a hollow dam, consisting of front and back faces, joined by counterforts every 12 feet. The space within the wall, approximately 4 feet in width, is occupied by conduits, flumes, intake wells, etc. The back wall consists of a slab 24 inches thick at base and 9 inches at top, reinforced with vertical and horizontal bars. The river face is 24 inches at base and 12 inches on top, without reinforcement, the counterforts being 18 inches thick and reinforced. The work cost $11.95 per cubic yard of concrete or $32.04 per linear foot complete.*

The Philadelphia Department of Wharves, Docks and Ferries has built extensive bank protective works along the two rivers in that city, the general practice consisting of three forms, riprap paving, timber cribbing or bulkheads, and concrete walls. The two latter methods being more expensive, are adopted where land values are high and where vessels use the shore for landings. The concrete walls built by this organization usually extend but a few feet above high tide, and rest on piles, the water face being usually vertical and the back face stepped off.

RIPRAP PAVING.

Where a wall is not necessary and a long slope is permissible, such slopes have been in certain instances paved with riprap to protect them from erosion. Riprap is usually placed on well compacted earth fill or upon loose stone fill, and when well laid has proved a satisfactory form of bank protection. This class of work has been quite widely adopted, and has been suggested by the Commission in certain instances, in connection with the approval of fills, conditioned upon the protection of the slopes.

Some of the railroads have realized that it is more economical to protect embankments where subject to river wash than to refill them after erosion by freshets. The Pittsburg and Lake Erie Railroad Co., whose tracks follow the south bank of the Ohio river from Pittsburg to the mouth of the Beaver river, has protected about three miles of the bank of that stream within the limits of the city of Pittsburg, the riprap being placed upon a fill of earth and cinder, costing about $2.00 per square yard of surface.†

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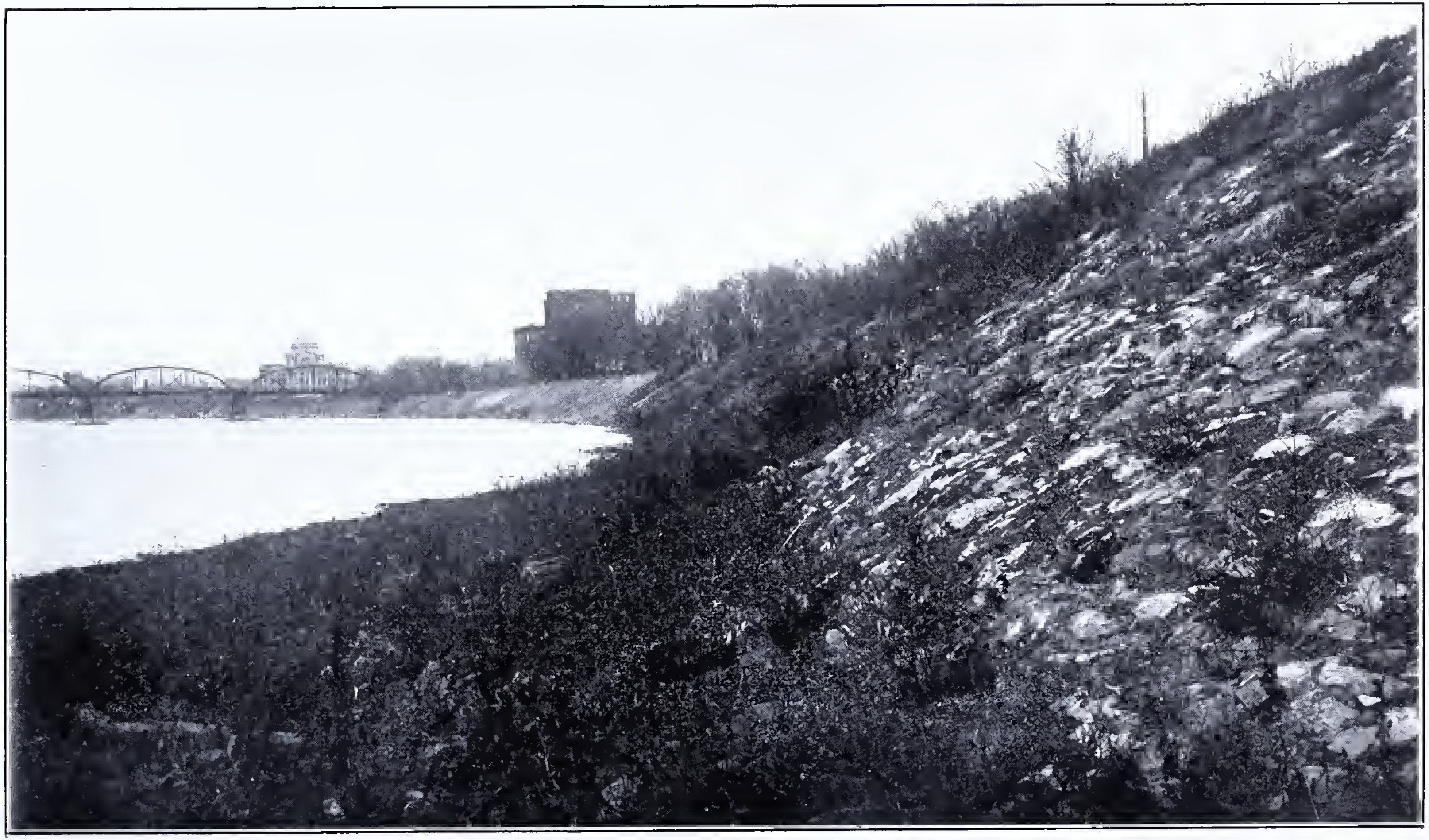
*Frank Caum, General Manager, Scranton Railways Co.

†J. A. Atwood, Chief Engineer, P. and Lake Erie R. R.



Earth fill, riprap faced, bank protection at Wilkes-Barre, Pa.

"Riprapping banks on this road is a very important matter, as this road runs close to the banks of the Mahoning, Ohio, Youghiogheny and Monongahela rivers at several points between Youngstown, on the Mahoning river, New Haven on the Youghiogheny, and Brownsville, on the Monongahela river, for a distance of about 165 miles along these rivers. At some points where riprapping is required and the tracks are far enough away from the harbor line to permit, the riprap is done by throwing stones over the bank, letting them roll or slide down, making a slope about 1 to 1½, slope varying in thickness from 2 to 4 feet. For this work quarry spalls are used or small stone such as can be handled by one man, and in some cases furnace slag, which becomes hard from the effects of the weather and makes very good riprapping, costing from one to two dollars per square yard. At points close to the harbor line stones such as can be handled by one man are used and laid in place by track laborers on a slope of one on one, varying in thickness from two to three feet, costing about three dollars per square yard.........In riprapping piers and abutments of bridges, in some cases where the current is not very rapid, small stone such as can be handled by one man are used, and where the current is very rapid, large breakwater stones, usually dropping them around the abutments or piers, allowing them to find their own bearing.

"In all cases the large breakwater stones filled in with small stones are preferable to fill up the crevices between the large stones and make the riprapping as compact as possible to prevent any washing."*

The river front at Wilkes-Barre has long offered a vexing problem, and about two years ago the improvement of the waterfront was taken up by a Park Commission. The bank which is underlain in some sections with running sand had cracked and slid down in a wedge 20 or 30 feet wide, and the face of the slope was undermining and sloughing off with each rise in the river. This condition was corrected by driving piles along the foot of the slope to prevent future sliding, and filling out the bank to make a smooth, regular curve, extending for about a mile along the city front. The face of this slope was riprapped and vines planted between the stones, while one portion was filled with rock, all the earth and rock for this filling being furnished to the city free of charge. A total of $13,800 was expended on this work in 1907 and 1908 effecting the paving of 12,350 square yards and the filling which was necessary.**

Under authority of the Act of June 13th, 1907, P. L. 646, the Water Supply Commission constructed bank protective works of this type at Matamoras, Pike county, during the past year, and owing to the different conditions, and to the objects desired, a different design was employed from that at West Bridgewater, described above. The borough of Matamoras extends for about a mile along the west bank of the Delaware river at the extreme eastern point of Pike county, and its 2,000 population is largely of a residential character, its principal street, Delaware Drive, following the river bank. This street, originally 50 feet wide, had been reduced by continual caving of the bank, to little over 25 feet at some points. The clay bank, the top of which is about 25 feet above normal water level, is underlain by a gravel bed; at its junction with the gravel the clay has been gradually undermined and the bank above has been cut back by continued caving and sloughing off, and if this condition had been allowed to continue the entire street would in time have been destroyed. The protection of this bank involved its extension at some points and its contraction at others, so that the top of the slope formed a series of tangents, joined by curves of small radii, giving the street a comparatively uniform width of 38 feet. From its finished top the bank was graded and thoroughly compacted on a one to one and one and one-half slope down to the junction with the gravel. At the south end the top of the bank was raised 2 to 4 feet, in order to elevate it above the high water of October, 1903, at which time overflow at this point submerged adjacent streets. On this slope, up to the usual high water line, 12 inches of riprap was placed, at the toe of which, and set down into the gravel flush with the surface, was placed a row of larger curbing stones, to hold the fill and riprap. Above the riprap the slope was graded and seeded. This work was done by contract, and cost for the grading and filling, 83 cents per cubic yard for borrowed dirt and 41 cents per yard for fill which was placed from excavation, while the rip-rap cost 95 cents per square yard. The whole 2,200 feet of bank was protected for $10,000, or at the rate of $4.60 per linear foot.

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*Extract from committee reports to the Annual Meeting of the Association of Railway Superintendents of Bridges and Buildings at Washington, D. C., October, 1908.

**E. E. Jones, Secretary, Wilkes-Barre Park Commission.

Long stretches of the State canal banks were protected, where the lines were adjacent to the rivers, by a substantial form of riprap paving, much of which is intact today although the canals themselves have long been abandoned. "The embankment was given a slope of one to one and paved with stone laid on edge square to the face of the embankment, the depth of this paving ranging from 9 inches to 1 foot thick, and large and small stones and spawls being used, laid by common laborers. This type of construction was found economical as to cost and very durable in service. The base, of course, should be well secured against undermining, and the top finished with coping or otherwise secured against ravelling out."*

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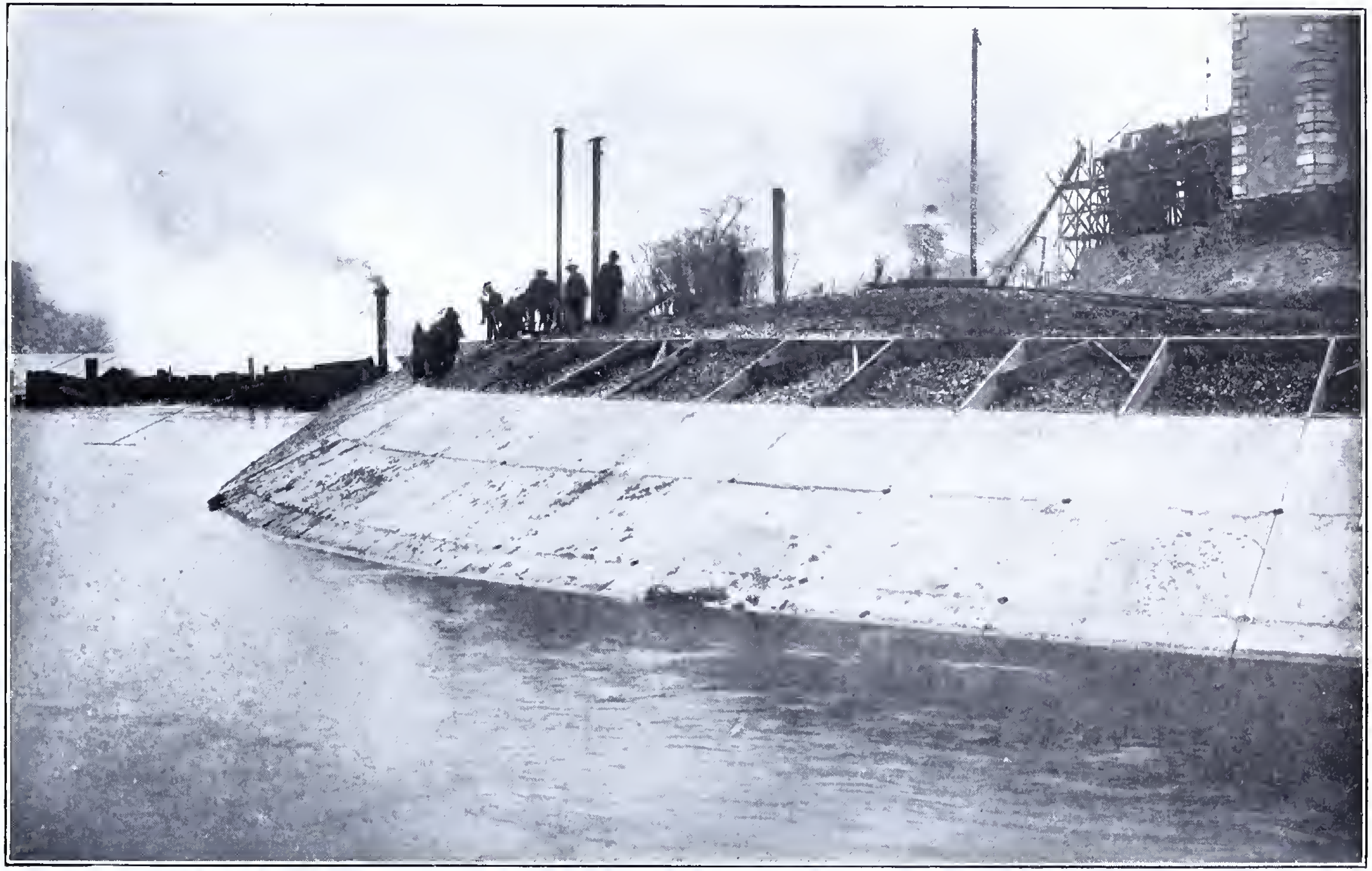
*T. T. Wierman, President of the Pennsylvania Canal Company.



Concrete paving for bank protection, Allegheny river at Pittsburg Filtration Plant.

CONCRETE PAVING ON SLOPES.

Recently the practice has been inaugurated of protecting the slopes with reinforced concrete paving in place of riprap, a form of construction probably more expensive than riprap but substantial in character and of good appearance. The facing on the dyke surrounding the Harrisburg filter plant, on Hargest island, in the Susquehanna river, opposite the city, is a first-class instance of this form of bank protection. The plant is on the upper end of the island, exposed to heavy ice flows, and as a break in the dyke would mean the shutting down of the filters, and perhaps the supplying of unfiltered water for an interval, it was deemed wise to protect this dyke in the most thorough way possible. An earth embankment 15 feet high surrounds the plant, the outside slope being 1½ to 1, on which was set 10 inches of spawl filling. On this bed was placed 4 inches of concrete, reinforced with small steel rods, the concrete extending to the bottom of a trench, along the foot of the slope. The earth filling cost 75c and 85c per cubic yard, depending on the length of haul, the spawl filling cost $1.00 per cubic yard, and the concrete cost $10.00 per cubic yard, or $1.10 per square yard.

The river slope of the clear water basin of the Pittsburg filtration plant at Aspinwall, on the west bank of the Allegheny river, is protected by a somewhat similar paving. This basin along the river about one half mile, its top being 31 feet above low water, while the sloping bank from its top down to the water line is subject to periodic rises of the river. The bank was first built on a 2 to 1 slope, following which 24 inches of coarse slag or gravel was spread and tamped. At the low water line piles were driven to support timbers forming a footing for 12 inches of concrete, which covered the entire slope from low water line to within two feet of the top of the bank. The total cost of this work, including slag base, concrete, piles, and footing timbers, was approximately $2.65 per square yard. It has been in place since January, 1907, and has shown no signs of weakness or need of repair.

On the north bank of the Allegheny river at Warren, Warren county, a small section of bank has been protected by an 8 inch covering of concrete, placed on a 1½ to 1 slope. It was stated that the concrete protection was cheaper at Warren, than riprap owing to the high cost of suitable paving stones.

LOOSE STONE FILLING.

Instead of building a sloping wall of earth and protecting it with some form of paving, such fills have been made in certain instances, when the rock is cheap, by dumping large boulders over the edge of the bank and allowing them to assume their natural slope. Such was the method used on a portion of the Wilkes-Barre waterfront, mentioned above. This form of construction has been used by railroads in disposing of material from rock cuts and tunnels. The large stones are not easily moved by the current, but might be disturbed by large areas of floating ice.

SLAG WALLS OR BANK PAVING.

The larger steel works of the State have found that a most satisfactory wall or slope protection can be built of the slag and cinder refuse from the furnaces. Such works, being quite generally located along the large streams, have found some method of bank protection necessary, not only for the preservation of the banks, but further the practice of using the waste products for this purpose offers a cheap means of its disposal, which has become, at some works, a problem of no small importance. Along the Ohio, Allegheny, Monongahela, and Youghiogheny rivers in the vicinity of Pittsburg, and at points on other streams where steel works line the banks, protection against bank erosion has been effectually obtained by this means, and in some instances this material has apparently resisted the action of the water for long periods. A common method of constructing such work is to excavate a foundation trench and lay up by hand a section of wall of cold slag blocks. Hot, moulten slag is then run down behind this wall, the semi-liquid material forcing itself into the interstices of the wall and welding the blocks together. When the ground behind has been filled to the level of the top of the first section of dry wall, another section is built on top of it, and the process is repeated to any required height.

The Jones and Laughlin Steel Company has about 2 miles of slag wall along its Pittsburg plant, 7,000 feet of it ranging from 17 to 28 feet in height, above low water, while some of the remainder is as high as 44 feet. "While some of this bank has been extremely satisfactory, other parts of it show a tendency to wash out underneath, allowing the slag to fall."* ....One section "about 2,000 feet long and 30 to 44 feet high, is 15 or 16 years old and shows no sign of wear and seems to be almost as good as concrete. In general, it would seem to form a most excellent wall if selected with a little care and properly placed. In such cases where it has been undercut the trouble seems to be with the nature of the soil underneath, rather than with the slag."*

The Cambria Steel Company has protected the banks of the Conemaugh river and Stony creek, at Johnstown, for many years with a fill of blast furnace slag and works refuse. "The furnace cinder is slightly soluble and at the water line slowly dissolves, permitting the upper part of the bank to slip down into the water. Where it has been possible we have been using cupola cinder, which is nothing but an impure glass and is not soluble."**

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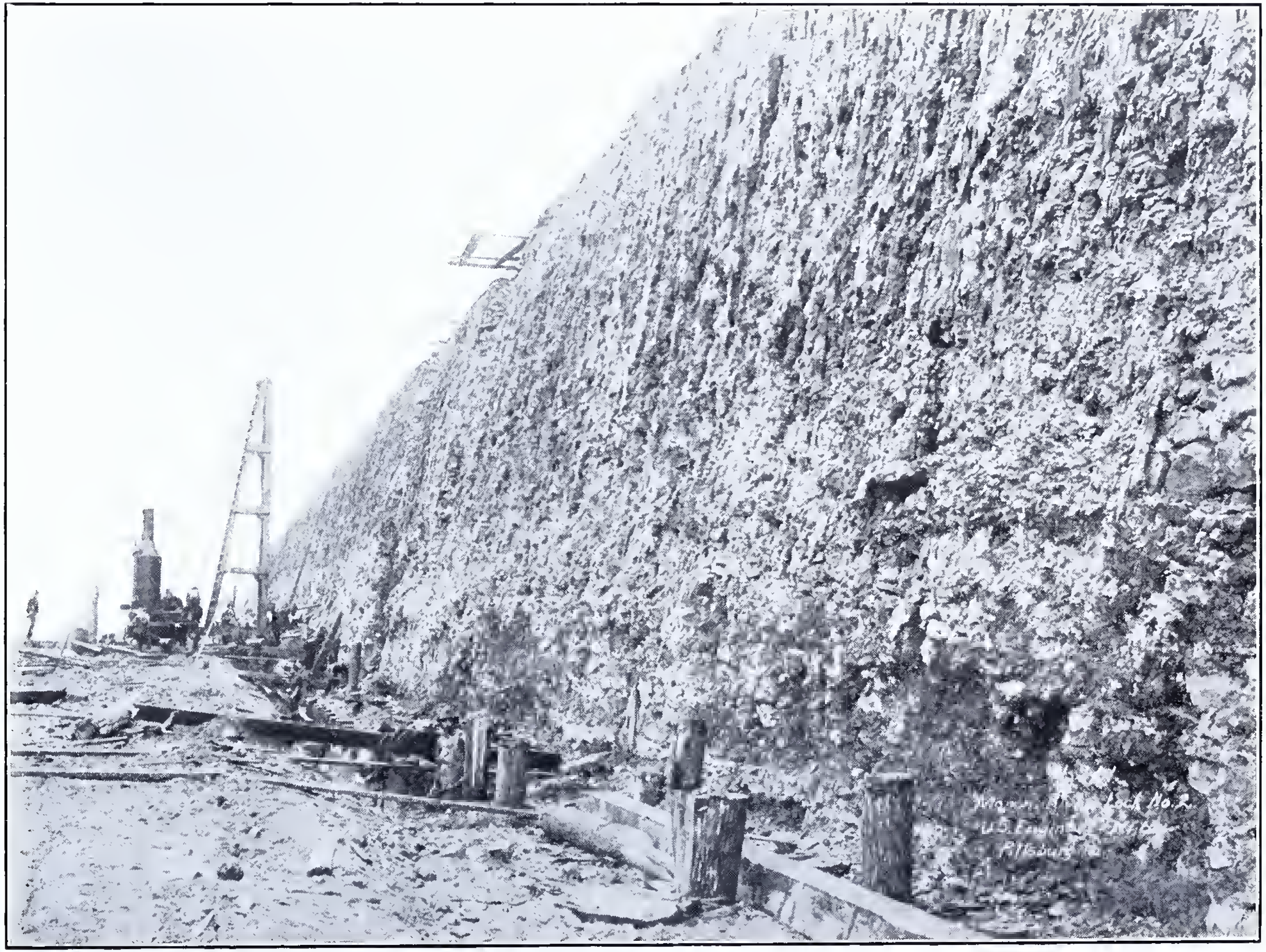
*Chief Engineer, Jones and Laughlin Steel Co.

**C. S. Price, Vice President and General Manager, Cambria Steel Co.



Wall built of steel works slag on Monongahela river.

Formerly these walls were often built without first finding proper foundations, the chief endeavor being to dispose of the slag, and many such banks have been undermined and are disintergrating, but when proper foundations are prepared and care employed in construction, most satisfactory results have been obtained.

TIMBER CRIBBING.

Perhaps the oldest method of bank protection practiced in Pennsylvania, and still widely in use, is the construction of timber cribbing against the bank, or the extension of such a construction into the stream, to effect a change in the current and thus protect a section of exposed bank. This form of construction is not so permanent as masonry walls or slope paving, but is often cheaper in first cost. The most extensive work of this character has been done along the Delaware and Schuylkill rivers, in Philadelphia, where many miles of river bank have received this treatment. The Philadelphia work consists usually of heavy timbers built up along the water front, supported on piles and tied to the bank by cross timbers bolted to piles, and filled in behind with stones and earth. In most instances such works have proved efficient and durable, failing with the rotting of the timbers, exposed as they are to the continued rising and falling of the tide. This cribwork is particularly applicable to use along navigable rivers.

A section of the bank of Hargest Island, Harrisburg, above mentioned, has been protected from wash by the erection of a rock filled crib jetty. The island rises from 10 to 15 feet above low water, and the loose earth and gravel bank, long exposed to the river, receded slowly to such a point that some form of bank protection was necessary. A stone filled, crib jetty was run out into the river a distance of about 150 feet, at an angle down stream, beginning at the elevation of the top of the bank and gradually reducing in height as it leaves the shore. It is placed at the upper end of the section of bank which it is designed to protect, the idea being that the slack water caused below it will cause the deposition of material, and gradually effect an extension of the bank below, while the jetty will also deflect the current from the shore and stop the cutting.

The Pennsylvania Railroad Co. is building timber cribs and jettys along portions of the river banks parallel by its lines, typical examples of which are to be found along the Conemaugh river above Conemaugh, where a rapid current and sinuous course causes considerable bank erosion. Along this streach of the river four sections of cribbing have been built, the total length being 772 feet. Extensive foundations are not generally used with such cribwork, the heavy timbers being built up against the bank, or as jettys, and filled with loose stones. The cost of these sections of cribbing was $2.45 per linear foot for material and $1.78 per linear foot for labor.*

Timber crib protection was used at the dams and along log chutes of the state canals. "The front and back walls were made of hewn timber 12 inches thick, 30 foot lengths and upward, hemlock and yellow pine, costing around $15.00 per M. ft. B. M., and oak ties......spaced 10 feet apart, and notched into the range timbers at each end........The face of the completed crib wall next to the river was sheeted with oak plank........These cribs were filled with stone, the top course laid on edge to serve as paving, for protection against the ice and river currents. The life of timber cribs of this type is 15 to 20 years, after which the timber has decayed, requiring renewal."**

In the above discussion it has not been attempted to include all examples of bank protection in the State, but to cover the various types of works which have been built, giving typical examples thereof. It is seen that the practice is quite varied, for no one form of construction would be applicable to all the various sets of conditions that may arise. Where fills are extensive inexpensive designs are essential, while in the case of a city water front, more costly design might be permissible. Where the municipal water supply is dependent upon the permanence of the work, as at the Harrisburg and Pittsburg filtration plants, the very best construction seems warranted.

So far as is known the States which surround Pennsylvania, and in which the tributaries of many of our streams rise, have taken no measures toward reducing the amount of silt carried thereby. The Commission contemplates taking up this question with the proper authorities in each such State, and endeavoring to obtain their cooperation in relieving the streams as much as possible, and in protecting the banks thereof.

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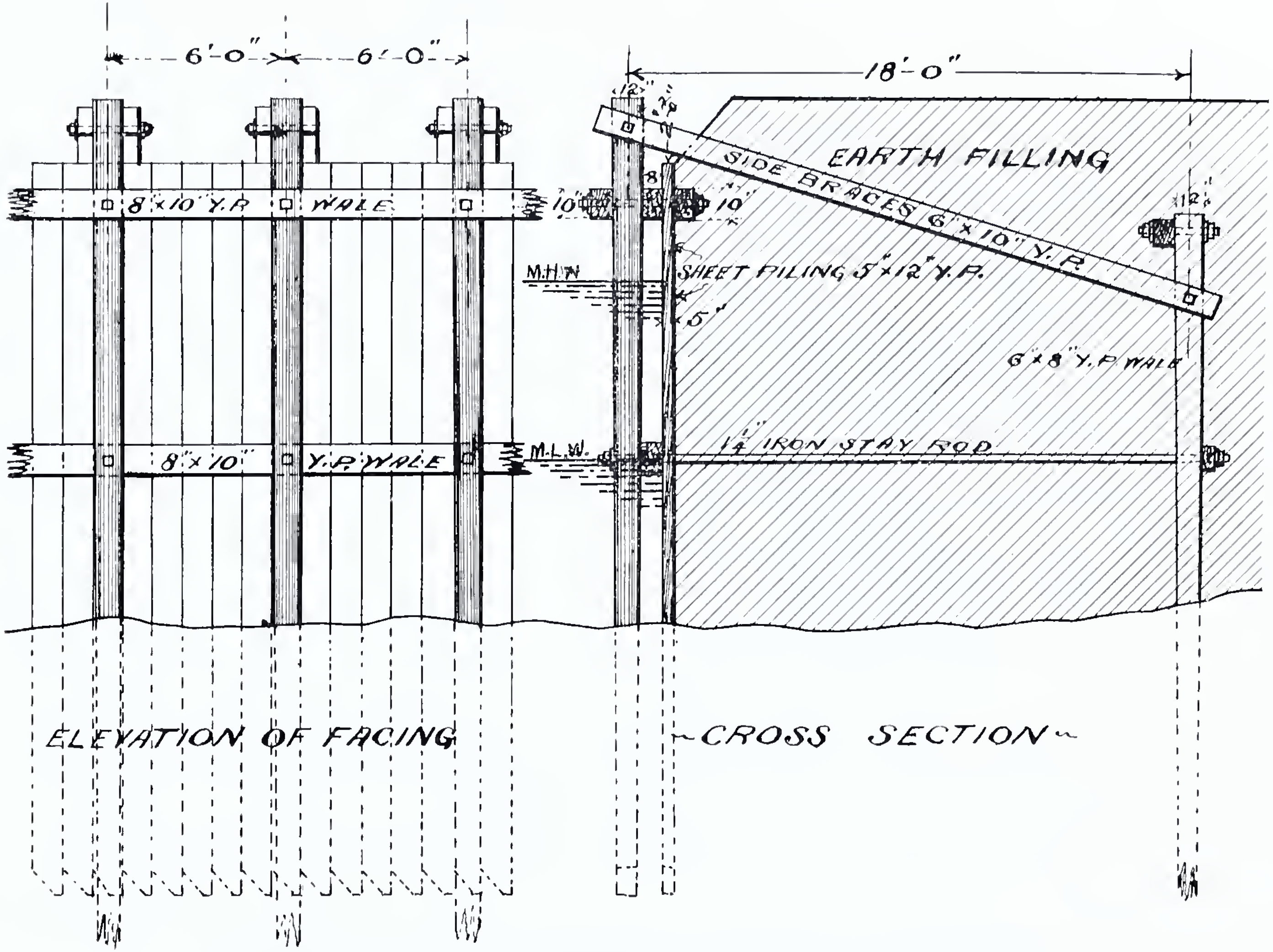
*S. C. Long, General Superintendent, Western Pa. Div. P. R. R.

**T. T. Wierman, Pres. Pa. Canal Co.



Timber crib work for bank protection,—Schuylkill river at Philadelphia.

CHAPTER III.

RAINFALL.

An investigation of the water resources of the Commonwealth involves a knowledge of the distribution and amount of the precipitation throughout its extent, for in the absence of applicable discharge measurements, rainfall records must be used for estimating stream flow. Rainfall may perhaps be best defined as the precipitation in the form of rain, snow or sleet, of the condensed moisture in the air, usually expressed in inches of depth over the surface. This condensation is caused by the resultant cooling of the atmosphere, when warm, moisture-laden vapors come in contact with cooler air currents. Warm air is capable of absorbing more moisture than is cool air, and consequently when warm air is saturated, a sudden drop in temperature results in the precipitation of the excess moisture which can no longer be held by the cooled air. This is well illustrated along the South Atlantic and North Pacific coasts of North America, where the warm, moisture-laden air over the sea drifts inland and gives a heavy rainfall when it is met by the cooler land breezes.

The winter, spring and fall rains and snows in Pennsylvania are mostly the result of storms covering considerable areas, traveling across the continent, usually from west to east, and by the time these storms reach Pennsylvania most of the original moisture, gathered from the Pacific ocean, has been precipitated, a fresh supply being gathered from the Gulf of Mexico, and finally from the Atlantic ocean. Much of the summer precipitation, however, is of a different character, thunder storms predominating, and such storms are purely local in causes and effects.

DISTRIBUTION OF RAINFALL OVER THE UNITED STATES.

A narrow belt of heavy average rainfall on the Pacific coast extends from Cape Flattery on the north to midway of the Oregon coast on the south, and inland as far as the summit of the Coast Range. In this, the region of greatest precipitation in the United States, the annual amount varies between 70 and 135 inches. In the east the area of greatest rainfall extends along the Atlantic coast from Mobile, Ala., around the Florida peninsula, and thence northward to Sandy Hook, New York, the maximum, 70 inches, occurring at Cape Hatteras, Virginia.; The following tables, Nos. 4 and 5, give the mean annual rainfall at points in these western and eastern regions of high precipitation.

TABLE NO. 4.

Rainfall along North Pacific Coast.

Station.	Term of record, years.	Precipitation in inches.
Tatoosh Island, Wash. (Cape Flattery),	14	93.3
Aberdeen, Wash.,	12	88.7
Glenora, Oregon,	12	136.3
Portland, Oregon,	32	45.6
Astoria, Oregon,	20	78.2
Euriea, Cal.,	17	45.8
La Porte, Cal.,	12	77.9

TABLE NO. 5.

Rainfall along South Atlantic Coast.

Station.	Term of record, years.	Precipitation in inches.
Mobile, Ala.,	33	62.1
Miami, Florida,	13	58.3
Savannah, Georgia,	14	52.7
Charleston, S. C.,	14	59.9
Wilmington, N. C.,	14	57.8
Kitty Hawk, N. C.,	13	60.0
Cape Hatteras, Va.,	14	70.0
Cape May, N. J.,	12–14	47.0
Sandy Hook, N. Y.,	12–14	51.0

Low rainfall occurs in the interior region, away from the oceans, the minimum precipitation being found where mountain systems obstruct the passage of moisture-laden air from all directions. Such conditions are especially noticeable in the desert portions of Arizona, Texas, California, Utah, New Mexico, Nevada and Colorado. Eastern Colorado is subject to an annual precipitation of about 12 inches; San Diego, Cal., during 54 years, 9.4 inches; while the lowest precipitation recorded in the United States is that Yuma, Arizona, the average for 28 years being 2.7 inches per year. The mean annual precipitation for the whole United States, as computed for the use of the United States Conservation Commission in 1908, is 29.4 inches.

The following table, giving the average annual precipitation for each State or larger geographic division, shows that Pennsylvania has a precipitation 18.3 inches above the average for the United States, ranking it as one of the well watered States. The rainfall is greater in the New England and most of the South Atlantic and

Gulf States and in the western portion of the North Pacific states, but it exceeds in slight degree that of the Lower Mississippi Valley States, and is materially higher than in most of the Central States.

TABLE NO. 6.

Average Annual Precipitation in United States or Larger Geographic Divisions†

State or Larger Geographical Division.	Average Annual precipitation in inches.
United States,	29.4
New England,	*40 to 50
New York,	*27 to 48.5
New Jersey,	47.7
Pennsylvania,	41.7
Maryland,	44.0
Virginia,	46.6
North Carolina,	52.0
South Carolina,	49.0
Georgia,	51.3
Florida,	54.5
Alabama,	52.0
Mississippi,	51.0
Louisiana,	57.6
Texas,	*10 to 50
Oklahoma and Indian Territory,	31.7
Arkansas,	46.7
North Dakota,	17.5
South Dakota,	20.3
Minnesota,	26.0
Wisconsin,	31.5
Michigan,	32.9
Nebraska,	23.6
Kansas,	*15 to 44
Iowa,	31.4
Missouri,	39.1
Illinois,	36.5
Indiana,	38.4
Ohio,	38.4
West Virginia,	42.5
Kentucky,	*40 to 53
Tennessee,	50.0
Montana,	14.2
Idaho,	15.3
Utah,	11.0
Wyoming,	13.0
Colorado,	*6 to 25
New Mexico,	13.0
Arizona,	*2.7 to 6
Nevada,	*3.4 to 12.4
Oregon,	*8.2 to 136.3
Washington,	*8.9 to 94
California,	*2.5 to 78

†Data largely taken from "Climatology of the U. S.," by A. J. Henry, 1906.
*Precipitation varies in different parts of the State between these limits.

DISTRIBUTION OF RAINFALL IN PENNSYLVANIA.

Rain falling in Pennsylvania is gathered from the Atlantic ocean and from the Gulf of Mexico, while in the extreme northwest, a small portion of the precipitation may result from proximity to the Great Lakes. The variation in precipitation over the State is less than that over many other States, the difference between reliable maximum and minimum annual records being approximately 20 inches. Over New England the precipitation is more uniform, showing a range of only about 10 inches; in New York it is slightly greater than in Pennsylvania, while in New Jersey and Maryland the variation is quite similar to that over this State. Owing to the size and shape of the State, however, the amount of rainfall shows considerable difference in its several sections. The State has no seaboard exposure, and its longest dimension extends in a westerly direction, nearly at right angles to the Atlantic shore line, the western boundary being about 400 miles from the ocean. The eastern end of the State, bordered by the Delaware river, is 60 miles back from the sea, and the rainfall in this section is doubtless influenced, to some extent, by its proximity. Over the eastern section of Pennsylvania, the precipitation comes largely from the Atlantic ocean, while much of the rain falling on the mountain and plateau region to the west of the Alleghenies presumably comes from the Gulf of Mexico. The general distribution of precipitation over the State is also influenced by local topographic features, which cause variations, probably greater in some instances than would result from the distances of these points from the sea, and among these local influences altitude seems to play a more important part than any other one factor, due to the interception by the hills and mountain ranges of moisture-laden air passing over them.

On the map on page 1, the lines of equal rainfall are determined by observations at nearly 200 stations, the averages of which records appear at the end of this chapter. Two classes of records have been plotted, those extending over a period less than 10 years, and those of a duration exceeding 10 years. In drawing the lines preference was given the longer records, the shorter ones being allowed to influence the curves only in the absence of more accurate data, and where observations are lacking these have been modified to a certain extent with reference to the topographic features, in so far as these would seem to affect the precipitation. Most of the United States Weather Bureau stations are in the river valleys, and it may fairly be assumed that they show a somewhat lower precipitation than on the hills.

The average annual precipitation for the State, 41.7 inches, was obtained by dividing the area of Pennsylvania into 57 approximately equal sections, determining a mean for each such section from the records within, or adjacent to, its boundaries, and then obtaining a mean of these 57 averages. The greatest mean annual rainfall is that recorded at Eagles Mere, Sullivan county, 67.1 inches, but the period of observation is short. Of the long term records, the greatest is 54.8 inches, at Girardville, Schuylkill county, while the least is at Pittsburg, Allegheny county, and at Towanda, Bradford county, both stations showing a mean annual precipitation of 35.9 inches. A short term record at Brownsville, Fayette county, shows an average precipitation of 32.4 inches per year. The approximate mean annual rainfall to which the various drainage basins are subject appears in Table No. 7, which indicates that, although at individual stations the short term records vary from 32.4 to 67.1 inches, and the long term records from 35.9 to 54.8 inches, there is not great divergence between the precipitation to which the various drainage basins, as a whole, are subject, the lowest being 38 inches, and the highest 46 inches.

TABLE NO 7.

Approximate Mean Annual Precipitation in Pennsylvania by Drainage Divisions.

Basin or Sub-Basin.	Approximate mean annual rainfall, in inches.
Delaware basin,	46
Susquehanna basin,	41
Ohio sub-basin,	38
Allegheny sub-basin,	42
Monongahela sub-basin,	41
Potomac basin,	42
Lake Erie basin,	38

An examination of the map shows that the lines of equal rainfall are irregular, while several small isolated areas of low and high precipitation occur, and that on the eastern border the precipitation is generally higher than in the central and western part, the highest being in the mountains of Schuylkill, and northern Berks counties, in the heart of the anthracite coal fields, due to its altitude and proximity to the sea, these being practically the first mountains to interrupt and cool the moisture-laden currents drawn in from the Atlantic ocean. The regions of the lowest precipitation are (1) across the central part of the northern borden, (2) in the southwest, (3) a small isolated area immediately east of the crest of the Alleghenies in Centre and Blair counties, (4) a long narrow strip in the south central part of the State, in Franklin, Adams, Cumberland, York, Dauphin and Lancaster counties, and (5) a narrow belt along the shore of Lake Erie, in the extreme northwest.

The assumption that much of the rain falling west of the crest of the mountains is drawn northward from the Gulf of Mexico explains the areas of high and low precipitation in that region; thus the region of high precipitation in Somerset, Fayette, Westmoreland, Indiana, Cambria, Clearfield, Jefferson and Clarion counties follows the high altitudes, intercepting the moist currents which have not been condensed further south. Surrounding this high area is a lower one, including most of the elevated plateau region of the north-west. In the low valley of the Allegheny, Kiskiminetas, Monongahela, Youghiogheny, Ohio and Beaver rivers, rain is less prevalent, owing to its interception by the higher altitudes to the south, while along the low coast of Lake Erie there exists a similar condition. The small area of low precipitation to the east of the crest of the Alleghenies in Blair and Centre counties may be explained by the fact that the many mountain ranges to the east intercept the moisture gathered along the sea coast, while the high crest of the Alleghenies to the west and south-west partly cuts off the rainfall from that direction. The greater part of the State is subject to from 40 to 45 inches annual precipitation. The area subject to this precipitation, as shown on the map, seems to occupy a fundamental or basic position, with the areas of greater or less rainfall carved out of it.

SEASONAL DISTRIBUTION OF PRECIPITATION IN PENNSYLVANIA.

The distribution of the rainfall throughout the year has an important bearing upon its value for agricultural and general water supply purposes. In certain portions of the United States there is a rainy and a dry season, most of the precipitation falling in the winter and spring months. Pennsylvania, however, does not have a marked wet or dry season, and for this reason derives greater benefit from its precipitation, for when seasonal distribution is unequal, ground, surface and artificial storage for tiding over the dry period has to be relied upon. More uniform seasonal distribution, however, aids the streams in maintaining their flow during the evaporating season and assists the crops during the growing season, obviating to some extent the necessity of storage.

In the latitude of Pennsylvania, during the winter months, the precipitation is largely in the form of snow and sleet, the ground surface being frozen much of the time, so that if the snow melts before the ground thaws, much of the moisture flows off in freshets. In the spring, however, the ground thaws, becoming moist and porous, and the water enters freely and passes into underground channels and reservoirs. During the summer months much of the rain is immediately absorbed by the dry ground, used by the growing plants and crops, or evaporated by the hot sun; while in the fall, less is used by growing plants and less is immediately evaporated, but considerable is absorbed by the dried earth. In general the winter precipitation is of less assistance in maintaining ground storage, as it usually passes directly off into the streams; that of the spring permeates the soil to a greater extent and fills the underground storage;

while the summer rains assist the growing crops and maintain, to some extent, the flow of the streams, and those of the fall replenish the depleted supply. In Pennsylvania the precipitation is fairly evenly distributed throughout the year, approximately equal amounts falling in winter, spring, summer and fall, as shown in the following table.

TABLE NO. 8.

Seasonal Distribution of Rainfall at Long Term Stations in Pennsylvania.*

Station.	Annual. Inches.	Precipitation.			
		Spring. Inches.	Summer. Inches.	Fall. Inches.	Winter. Inches.
Erie,	39.2	8.8	10.2	11.0	9.2
Saegerstown,	44.3	10.6	13.5	10.1	10.1
Emporium,	44.2	11.6	13.2	9.7	9.7
Leroy,	41.2	11.0	12.3	9.4	8.5
South Eaton,	38.2	10.0	10.7	9.0	8.5
State College,	40.2	10.8	12.0	8.8	8.6
Mauch Chunk,	50.5	13.1	13.8	11.5	12.1
Selins Grove,	44.1	11.6	12.8	10.5	9.2
Pittsburg,	36.8	9.4	11.4	7.5	8.5
Huntingdon,	42.2	12.0	11.6	9.3	9.3
Lebanon,	45.9	12.3	12.6	10.3	10.7
Quakertown,	45.2	11.3	12.3	10.8	10.8
Harrisburg,	38.1	9.9	11.5	2.3	8.4
York,	41.9	10.7	11.5	10.3	9.4
West Chester,	50.5	12.8	13.3	12.2	12.2
Philadelphia,	40.6	9.5	11.9	9.5	9.7
Average,	42.7	11.0	12.3	9.9	9.7

*From Bulletin Q—"Climatology of the U. S.," by A. J. Henry, page 213.

This table indicates that while the average precipitation in the four seasons is nearly equal, the rain falling during the summer exceeds slightly the precipitation during the other seasons, the next greatest rainfall being in the spring, while the winter precipitation is the least. Although not ideal for uniform water supply, these conditions are more favorable than distinct wet and dry seasons.

HISTORY OF RAINFALL RECORDS IN PENNSYLVANIA.

The earliest available rainfall records in Pennsylvania were taken in 1798, but the first general series for the State was started in 1887 and conducted under the direction of the Franklin Institute of Philadelphia, by authority of the Pennsylvania Legislature, and appropriations were made for defraying the expenses thereof, the United States Weather Bureau detailing officers to assist in the work from year to year. Under the provisions of the Act of 1889, the State Department of Internal Affairs commissioned the local observers and paid the bills as certified and presented by the Franklin Institute, and in the report of the Secretary of Internal Affairs for 1895 is published the climatological data for Pennsylvania to that date. The work was then taken up and has since been conducted by the United States Weather Bureau. The endeavor of the Federal authorities has been to locate and maintain an observation station in each county, but for many reasons this has not been possible, as the observers are voluntary, and but about 50 per cent. can be depended upon to keep accurate and continuous records, while the balance are constantly changing, so that many of the records are not continuous. The Philadelphia Bureau of Water has maintained a number of rain gages in the valleys of the Delaware and Schuylkill rivers, some of the records covering over twenty-five years. Other records have been kept by the United States Army Engineer Corps, municipal water departments, private water companies, educational institutions, hospitals and individuals. As far as possible, these records have been collected by this Commission for study and comparison, and those which seem trustworthy and of value are presented herewith. Out of a total of 277 different records obtained, 92 have been discarded as of doubtful authority or of too short duration. It was found that many records, though taken at important points, were so fragmentary as to render them comparatively valueless, while records at points of far less importance in determining the water supply have been maintained uninterruptedly for many years. Such conditions are bound to exist under the present system of employing voluntary observers, and a station of great value is liable at any time to be discontinued for similar reasons.

CHARACTER OF PENNSYLVANIA RECORDS.

As to the reliability of rainfall records, a quotation from a paper entitled "The Mean or Average Annual Rainfall, and the Fluctuations to which it is Subjcted,"* is presented. Based upon the assumption that care has been exercised in offering the records, "any good record of thirty-five years and upwards may be accepted within limits, and a record of fifty years is nearly as good as that of a longer perior," also "the conclusion may be drawn that dependence can be placed on any good record of thirty-five years duration, to give the mean rainfall correct within two per cent. of the truth; and that for shorter periods of five, ten or fifteen years, the probable extreme duration from the mean would be 15, 8.25 and 4.75 per cent. respectively." Few records in Pennsylvania extend over more than thirty years, and to judge from the author's deductions, we have in this State little first class data upon which to base estimates. There are, however, several records upon which great dependence may be placed, and others are rapidly becoming of a more reliable nature.

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*Alexander R. Bennie (Proceedings for 1896 of the Institute of Civil Engineers, London; Vol. 109, p. 89).

TABLE NO. 9.

Precipitation in the Upper and Middle Delaware River Sub-Basins.

Station.	County.	Elev.	Mean Monthly Precipitation in Inches.												Mean yearly.	No. of years of record.	No. of full years.	Max. yearly prec.	Min. yearly prec.	Term of record.
			Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.						
Bethlehem,	Northampton,	300	3.59	3.52	3.70	2.76	4.21	4.00	4.53	4.19	3.28	3.08	3.46	3.29	43.61	25	22	57.68	29.68	1877-01
Blooming Grove,	Pike,	------	2.79	3.34	3.66	3.16	4.14	4.04	5.13	4.95	2.19	3.61	3.81	2.86	44.68	27	33	72.36	24.00	1865-97
Coopersburg,	Lehigh,	549	3.95	4.41	4.29	2.97	5.85	2.82	4.78	4.15	3.44	3.46	3.83	3.34	47.45	11	10	57.78	36.36	1890-00
Doylestown,	Bucks,	347	3.68	4.21	4.20	3.57	4.37	4.21	5.06	5.66	3.95	4.26	3.55	3.81	50.53	22	20	67.08	31.57	1883-06
Drifton,	Luzerne,	1,633	3.26	2.95	3.04	3.60	5.01	3.72	4.56	5.06	3.54	3.61	3.77	3.21	45.33	18	11	54.78	29.77	1884-08
Dyberry,	Wayne,	1,100	3.02	2.97	3.23	2.53	3.01	3.05	4.75	3.77	3.19	3.18	3.13	2.98	36.81	38	28	53.37	28.86	1846-08
Easton,	Northampton,	325	3.60	3.33	3.42	3.11	4.25	3.73	4.70	4.72	3.80	3.41	3.28	3.77	45.22	31	30	63.97	34.22	1846-08
Egypt,	Lehigh,	450	3.25	3.05	1.15	2.69	3.43	2.27	4.14	5.37	3.08	4.26	3.02	3.21	38.93	3	1	--------	--------	1872-74
Fallingston,	Bucks,	30	3.58	3.69	3.50	3.39	4.00	3.66	4.11	4.42	3.25	3.14	3.21	3.42	43.37	27	23	49.90	36.00	1880-08
Forks of Neshaminy,	Bucks,	304	3.75	4.05	3.90	3.29	4.52	4.23	5.31	4.82	3.96	3.88	3.34	3.77	48.82	25	23	62.07	39.53	1884-08
Hawley,	Wayne,	896	3.41	3.99	3.67	2.47	4.19	4.50	5.37	3.58	3.52	3.55	3.86	3.79	45.90	4	2	48.14	43.27	1897-00
Honesdale,	Wayne,	1,000	3.51	3.35	3.07	2.84	4.65	3.19	4.74	3.93	3.47	3.21	2.99	3.23	42.18	16	13	50.29	36.53	1882-97
Hulmeville,	Bucks,	20	3.47	2.92	2.34	2.76	1.76	4.13	6.90	4.36	2.67	2.97	3.31	3.81	41.40	9	2	--------	35.78	1877-92
Mauch Chunk,	Carbon,	550	3.75	4.13	4.33	3.36	4.46	4.14	4.99	4.73	4.01	3.97	3.49	4.22	49.58	20	17	65.05	40.70	1889-08
Milford,	Pike,	455	3.07	3.05	3.84	2.69	3.52	4.44	4.04	5.17	4.41	5.44	2.34	3.98	45.99	6	6	55.61	41.03	1903-08
Moreland and Horsham,	Montgomery,	250	2.44	3.23	3.51	3.19	5.25	5.84	4.65	6.44	4.37	4.80	3.84	2.28	50.30	10	8	55.13	43.95	1864-73
Morrisville,	Bucks,	30	3.27	2.71	3.20	3.84	3.76	4.24	3.82	4.35	3.07	3.31	3.40	3.51	42.67	32	31	57.00	30.34	1825-60
Newtown,	Bucks,	145	2.79	2.89	3.67	5.20	4.05	4.18	5.10	6.87	2.96	3.33	3.73	5.22	50.09	6	3	57.34	41.85	1838-43
Ottsville,	Bucks,	400	3.73	4.06	3.96	3.07	4.35	3.82	5.17	4.57	4.00	3.72	3.38	4.06	47.89	26	25	71.09	34.41	1883-08
Plymouth Meeting,	Montgomery,	535	3.13	2.45	4.32	2.36	4.04	5.28	4.02	3.42	2.36	5.69	3.20	2.28	42.55	5	3	48.90	41.20	1868-72
Point Pleasant,	Bucks,	100	3.53	3.86	3.94	3.41	4.86	3.92	5.17	5.66	4.15	4.19	3.20	3.87	49.76	21	20	65.88	40.18	1887-08
Pocono Lake,	Monroe,	1,662	2.86	3.70	4.43	3.09	3.04	5.18	4.72	4.52	5.66	5.02	2.09	4.12	48.43	6	4	54.99	41.12	1901-08
Quakertown,	Bucks,	536	3.47	3.87	3.79	3.16	4.20	3.65	4.70	4.33	3.88	3.55	3.27	3.42	45.29	34	28	68.86	20.87	1872-05
Salem Corners,	Wayne,	1,600	3.50	3.90	3.99	3.20	4.12	4.14	4.70	4.51	4.11	3.82	3.25	3.73	46.97	22	10	57.90	36.51	1869-03
Seisholtzville,	Berks,	860	3.92	3.81	4.08	3.53	4.50	3.80	5.12	5.17	3.99	4.32	3.73	4.07	50.04	25	22	68.30	39.86	1884-08
Smith Corners,	Bucks,	480	3.46	3.40	3.80	3.31	4.66	3.93	5.14	5.23	4.47	4.14	3.32	3.50	48.36	20	20	68.73	37.25	1889-08
White Haven,	Luzerne,	1,150	3.19	3.00	3.31	2.64	4.16	4.00	4.21	3.40	2.21	3.84	4.08	2.40	40.44	7	3	44.20	40.66	1895-07

Greatest annual prec. at Doylestown, 50.53 inches—22 years.
Least annual prec. at Dyberry, 36.81 inches—38 years.
Average, 45.65 inches.

TABLE No. 10.

Precipitation in Lower Delaware River Sub-Basin.

Station.	County.	Elev.	Mean Monthly Precipitation in Inches.												Mean yearly.	No. of years of record.	No. of full years.	Max. yearly prec.	Min. yearly prec.	Term of record.
			Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.						
Browers Lock,	Berks,	83	3.83	4.15	3.79	3.02	4.00	4.14	4.48	4.50	3.87	3.59	3.31	3.60	46.28	26	24	61.06	35.22	1883-08
Chromedale,	Delaware,	196	3.79	3.15	2.49	3.91	4.80	3.93	3.96	4.97	3.08	3.27	3.39	4.37	44.11	11	9	53.29	40.77	1849-59
Coatesville,	Chester,	380	3.95	4.54	4.58	3.46	4.49	3.85	5.04	4.48	4.59	3.92	3.52	4.09	50.51	21	20	68.94	38.51	1888-08
Fort Mifflin,	Philadelphia,	20	2.43	2.74	4.63	3.44	4.90	2.87	4.77	4.98	3.19	3.72	3.51	4.23	45.41	7	5	51.33	38.02	1843-53
Frederick,	Montgomery,	160	3.40	3.84	3.73	2.76	5.09	3.93	5.62	4.00	3.04	3.39	3.75	3.30	45.85	15	12	60.27	36.58	1883-99
Germantown,	Philadelphia,	121	2.33	3.58	3.46	2.67	2.78	3.22	4.25	3.91	3.48	3.51	3.01	3.05	39.25	9	8	49.40	30.64	1819-27
Green Lane,	Montgomery,	240	4.53	4.97	2.57	2.42	2.71	3.21	4.90	3.96	2.60	4.49	2.71	4.37	43.44	3	2	50.63	33.96	1883-85
Hamburg,	Berks,	380	3.71	3.40	4.41	3.68	4.82	3.73	5.36	5.42	4.24	3.99	2.74	3.89	49.29	19	16	60.89	35.42	1890-08
Haverford College,	Delaware,	400	3.78	3.31	3.22	4.81	3.90	4.36	3.48	3.99	3.38	3.60	3.95	3.97	45.75	16	2	54.89	46.26	1839-85
Kennett Square,	Chester,	275	3.72	4.33	4.12	3.50	4.44	4.11	4.74	4.89	4.60	3.60	3.42	3.76	49.23	20	16	60.68	34.24	1888-08
Lansdale,	Montgomery,	368	3.36	3.73	3.36	2.71	3.96	3.64	4.84	4.77	3.62	3.83	3.30	3.40	44.52	24	22	65.10	37.20	1884-08
Norristown,	Montgomery,	153	3.82	3.17	2.61	4.87	4.49	4.41	3.67	3.76	4.34	2.97	3.71	3.97	45.79	11	8	48.14	36.04	1839-63
Philadelphia "C.,"	Philadelphia,	90	3.33	3.35	3.56	2.94	3.37	3.38	4.29	4.85	3.40	3.13	3.14	3.03	41.77	38	38	61.56	30.21	1871-08
Penn'a Hospital, Philadelphia,	Philadelphia,	----	3.49	3.18	3.60	3.49	3.85	4.11	4.22	4.62	3.62	3.39	3.56	3.62	44.70	64	64	61.20	29.57	1825-88
Phoenixville,	Chester,	120	4.28	3.68	4.23	3.63	5.11	4.29	4.66	4.45	3.84	3.69	2.58	3.14	47.58	7	4	53.74	43.05	1869-95
Pottstown,	Montgomery,	150	3.42	3.60	4.02	3.31	4.83	4.05	5.49	3.84	3.68	3.35	3.53	3.54	46.38	25	23	54.56	37.43	1876-02
Pottsville,	Schuylkill,	614	3.99	3.69	4.23	3.18	4.72	4.07	4.95	5.53	3.79	4.06	3.46	4.06	49.73	26	26	64.11	37.44	1883-08
Pocopson,	Chester,	218	3.29	3.39	3.36	3.98	4.75	4.72	3.53	4.75	4.25	3.51	3.49	3.53	46.18	20	19	52.94	31.35	1854-73
Reading,	Berks,	280	3.45	3.48	3.70	2.80	4.20	3.67	4.21	4.22	3.33	3.31	2.86	3.39	42.62	29	29	56.82	31.46	1880-08
Schuylkill Haven,	Schuylkill,	526	3.96	3.96	2.65	2.40	3.35	3.05	3.82	4.16	1.74	2.92	2.59	3.84	38.43	5	5	43.85	34.90	1883-87
Shawmont,	Philadelphia,	69	3.09	3.24	3.68	2.56	3.53	3.46	4.76	5.07	3.43	3.67	2.85	3.71	43.05	13	12	50.04	38.19	1896-08
Spring Mount,	Montgomery,	150	3.29	3.03	3.58	3.15	3.13	3.99	4.44	4.60	4.66	4.06	2.33	4.06	44.32	8	8	48.98	39.45	1901-08
Swarthmore College,	Delaware,	190	3.23	3.52	4.19	3.00	3.70	3.90	4.86	4.81	4.17	3.82	3.16	3.01	45.37	18	5	58.36	37.05	1888-05
West Chester,	Chester,	455	3.91	4.11	4.36	3.57	4.52	4.24	4.90	4.50	4.34	3.83	3.80	3.93	50.01	57	57	73.08	33.03	1818-08

Greatest annual prec. is at Coatesville, 50.51 inches—21 years.
Least annual prec. is at Germantown, 39.25 inches—9 years.
Average, 45.40 inches.

TABLE No. 11.

Precipitation in the North Branch Susquehanna River Sub-Basin.

Station.	County.	Elev.	Mean Monthly Precipitation in Inches.												Mean yearly.	No. of years of record.	No. of full years.	Max. yearly prec.	Min. yearly prec.	Term of record.
			Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.						
Athens,	Bradford,	768	2.06	1.84	3.15	2.62	2.71	3.51	3.60	4.07	2.22	3.31	2.78	2.56	34.43	7	5	39.29	28.08	1898-04
Bear Gap,	Northumberland,	620	1.94	2.79	3.90	2.69	2.93	4.33	4.50	5.49	2.94	3.90	1.82	3.05	40.56	9	9	47.20	33.00	---------
Bloomsburg,	Columbia,	490	1.68	3.15	2.52	2.55	4.60	3.89	3.23	3.82	2.55	3.05	2.39	2.38	35.81	11	6	42.09	28.47	1892-03
Catawissa,	Columbia,	478	3.35	2.83	3.33	2.78	4.08	4.18	3.65	4.09	3.13	3.12	3.05	2.92	40.51	15	9	44.45	31.06	1872-91
Dushore,	Sullivan,	1,590	2.43	2.64	3.42	2.86	3.49	4.03	4.64	4.14	2.48	3.01	2.14	3.52	38.80	12	7	53.96	32.51	1897-08
Girardville,	Schuylkill,	1,021	4.17	4.10	4.73	3.55	5.05	4.65	5.54	5.20	4.39	4.45	3.82	4.55	54.20	21	21	76.27	39.27	1888-08
Gordon,	Schuylkill,	804	4.35	3.66	5.57	3.84	3.50	4.47	4.60	4.53	4.92	5.09	2.20	4.54	51.27	6	4	55.98	48.40	1903-08
Laurenceville,	Tioga,	1,003	2.15	1.90	2.93	2.82	3.45	3.99	4.23	3.47	2.54	2.84	2.50	2.77	35.59	12	9	37.75	32.00	1897-08
Montrose,	Susquehanna,	1,658	3.21	1.35	3.08	2.81	3.26	3.69	4.34	3.43	4.13	3.97	2.20	2.74	38.21	6	2	39.78	39.17	1903-08
Scranton,	Lackawanna,	805	2.40	3.06	3.53	2.41	2.93	3.62	3.97	3.60	2.92	3.07	2.23	3.29	37.03	14	12	44.97	31.28	1895-08
South Eaton,	Wyoming,	660	2.54	2.81	3.53	2.54	3.66	3.70	3.75	3.94	3.01	3.55	2.56	3.30	38.89	19	18	50.88	31.00	1889-07
Towanda,	Bradford,	754	1.83	1.82	3.01	2.38	3.11	3.86	3.86	4.02	3.36	3.31	2.15	2.67	35.38	16	14	43.76	25.41	1894-08
Troy,	Bradford,	---------	2.87	1.75	2.32	2.17	2.58	2.90	3.74	3.81	2.31	3.82	2.75	2.97	32.98	8	4	43.56	26.77	1883-91
Wilkes-Barre,	Luzerne,	575	2.96	3.25	3.70	2.37	3.38	4.20	4.42	3.76	3.08	2.95	2.72	3.33	40.72	27	19	51.93	34.39	1881-08
Wysox,	Bradford,	718	3.04	2.12	2.44	2.14	2.84	3.60	3.65	4.10	2.94	3.28	3.31	2.23	35.69	9	5	40.70	32.21	1885-93
Factoryville and N. Abington,	Wyoming,	1,183	3.37	2.72	3.55	3.34	3.52	4.16	5.72	3.87	2.74	3.91	2.95	2.36	42.54	7	6	49.55	39.49	1868-74

Greatest annual prec. is at Girardville, 54.20 inches—21 years.
Least annual prec. is at Troy, 33.98 inches—8 years.
Average, 39.60 inches.

lin Institute, and in the report of the [illegible]

[illegible] years, the probable extreme duration from the mean would be 15, 8.25 and 4.75 per cent. respectively." Few records in Pennsylvania extend over more than thirty years, and to judge from the author's deductions, we have in this State little first class data upon which to base estimates. There are, however, several records upon which great dependence may be placed, and others are rapidly becoming of a more reliable nature.

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*Alexander R. Bennie (Proceedings for 1896 of the Institute of Civil Engineers, London; Vol. 109, p. 89).

Heretofore, rainfall stations in this State have not been located with a view to using the results as a basis for the determination of stream flow, for the Franklin Institute and the United States Weather Bureau have employed a geographical basis for agricultural and general scientific purposes. Individual and local problems have been responsible for the measurement of rainfall at certain points to determine run-off, such as the water supply problem of Philadelphia, and other cities. This method, however, has never been applied to the State as a whole; so that, although there are many records, the data obtained is not so valuable in determining the stream flow as it would have been had the stations been located with this object in view. Rainfall stations located in the collecting areas of streams are of more value in this work than those located in the valleys of the large rivers. One station properly placed adjacent to a number of watersheds may supply valuable data for each stream, and replace one station in each area. For the purposes for which they were placed, the locations of the Weather Bureau stations are in most cases satisfactory and practicable, but have resulted in making records sarce in sections where they would have been of the most value in determining stream flow.

METHODS OF MEASUREMENT.

The United States Weather Bureau maintains stations all over the United States for the observation of rainfall, and as many of the tables included in this report are taken from its records, it is deemed advisable to annex a short description of its methods. In the measurement of rainfall, the standard gage used by the United States Weather Bureau offers a simple and accurate method. The following text and sketches are taken from the "Pamphlet of instruction for the measurement and registration of the precipitation by means of the standard instruments of the United States Weather Bureau," under he title of "Measurement of Precipitation."*

"THE MEASUREMENT OF PRECIPITATION."

"1. Rain, snow, hail, etc., are all included under the general designation, precipitation.

"Rain. The amount of rain falling at any time is measured on the basis of the depth of water which would accumulate on a level surface if all of it remained as it fell and none flowed or soaked away or was lost by evaporation.

"Snow, hail, etc., are measured both on this basis of the actual depth of the precipitation, also, and more definitely, by first melting the snow or hail and thereby obtaining the equivalent depth of melted precipitation."

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*Notes.—This is offered in the hope that individuals and corporations will co-operate with the Commission in establishing and maintaining rain gages.

EXPOSURE OF GAGES.

"2. The exposure of gages is a very important matter. The wind is the most serious disturbing cause in collecting precipitation. In blowing against the gage, the eddies of wind formed at its top and about the mouth carry away rain, and especially snow, so that too little is caught. Snow is often blown out of a deep gage after once lodging therein.

"A. Rain gages in slightly different positions, if badly exposed, catch very different amounts of rainfall. Within a few yards of each other two gages may show a difference of 20 per cent. in the rainfall in a heavy rain storm. The stronger the wind the greater the difference is apt to be. In a high location eddies of wind produced by walls of buildings divert rain that would otherwise fall in the gage. A gage near the edge of the roof, on the windward side of a building, shows less rainfall than one in the center of the roof. The vertical ascending current along the side of the wall extends slightly above the level of the roof, and part of the rain is carried away from the gage. In the center of a large, flat roof, at least 60 feet square, the rainfall collected by a gage does not differ materially from what is collected by a gage at the level on the ground. A gage on a plain with a tight board fence 3 feet high around it at a distance of 3 feet, will collect 6 per cent. more rain than without the fence. These differences are due entirely to wind currents.

"B. Observers will, therefore, take particular care in selecting a place for the location of the gages, as the value of the records is sometimes greatly impaired by improper exposure. It is scarcely necessary to say that every precaution should be taken to protect gages from the interference of unauthorized persons and animals. Select, if possible, a position in some open lot unobstructed by large trees, buildings or fences. Low bushes and fences, or walls that break the force of the wind in the vicinity of the gages are, however, beneficial, if at a distance not less than the height of the object. Such a place, in general, affords the best exposure. Gages should be exposed upon roofs or buildings only when better exposures are not available, and when so located, the middle portion of a flat, unobstructed roof, generally gives the best results.

"3. In general, the rain and snow gages will be installed side by side, not nearer than three and one-half feet from each other, centre to centre of gage.

"Stations which use a recording gage will expose a standard 8-inch gage for use as snow gage, and during the warm season may use the same for checking reading of rainfall in cases of emergency.

"4. Snow fall is preferably measured as depth of water rather than by the thickness of layer it forms on the ground. When it can not be measured by melting, it is customary to take one-tenth the measured depth of the snowfall on a level open place as the water

TABLE NO. 12.

Precipitation in the West Branch Susquehanna River Sub-Basin.

Station.	County.	Elev.	Mean Monthly Precipitation in Inches.												Mean yearly.	No. of years of record.	No. of full years.	Max. yearly prec.	Min. yearly prec.	Term of record.
			Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.						
Bellefonte,	Center,	744	2.99	2.33	4.29	3.28	4.11	4.56	4.88	4.14	3.12	2.48	2.03	3.76	41.88	12	7	47.45	37.00	1839-08
Cameron,	Cameron,	964	2.28	2.09	4.27	2.25	3.78	4.91	5.47	3.35	3.35	3.64	3.19	1.95	40.66	4	3	47.73	34.74	1896-99
Center Hall,	Center,	1,272	2.27	2.95	4.19	2.65	3.07	4.09	4.22	4.54	2.88	3.20	2.33	2.94	39.43	13	5	47.96	35.27	1896-08
Cedar Run,	Lycoming,	760	3.26	2.89	3.12	1.92	1.95	4.14	2.94	2.27	3.42	3.09	2.12	1.84	32.96	4	2	37.74	29.40	1896-99
Driftwood,	Cameron,	816	2.30	1.88	4.11	2.63	3.75	3.67	4.92	3.60	3.41	2.43	2.67	3.16	38.53	8	7	43.16	32.14	1895-02
Eagles Mere,	Sullivan,	2,060	5.47	4.85	4.92	4.14	6.14	3.20	4.82	6.45	7.60	8.73	5.71	5.06	67.09	5	2	71.10	63.91	1888-92
Emporium,	Cameron,	1,050	3.28	2.98	3.93	3.12	4.65	4.57	4.78	3.64	3.34	3.15	2.86	3.50	43.80	21	20	63.26	34.16	1888-08
Farrandsville,	Clinton,	583	2.02	2.58	3.89	2.19	3.32	3.70	4.38	4.35	4.04	2.88	3.59	2.69	39.63	5	3	42.73	38.89	1895-99
Fleming,	Center,	------	2.69	2.59	3.60	4.29	3.92	3.97	3.45	3.87	4.16	3.92	3.03	3.11	42.60	9	8	46.05	39.75	1859-67
Grampian,	Clearfield,	1,450	3.42	3.34	3.02	3.36	3.99	4.23	4.98	4.05	3.28	2.82	3.12	3.62	45.13	42	28	55.88	32.55	1864-05
Keating,	Clinton,	714	2.28	2.45	3.81	2.71	3.32	4.10	4.67	3.72	3.47	2.59	3.21	2.23	38.56	9	4	41.70	37.45	1895-03
Lewisburg,	Union,	450	2.68	2.78	3.64	3.20	4.16	4.15	4.12	4.86	3.46	3.25	2.65	3.22	42.17	34	27	52.44	34.15	1856-08
Lock Haven,	Clinton,	560	3.08	2.93	3.81	3.02	3.75	4.25	4.21	4.28	3.53	3.16	2.72	3.32	42.06	21	18	49.48	31.97	1888-08
Milton,	Northumberland,	480	2.20	4.18	3.75	2.54	4.50	5.33	3.99	4.90	2.04	2.50	3.93	2.49	42.35	4	2	42.06	41.85	1879-82
Nisbet,	Lycoming,	550	2.43	3.73	3.33	2.07	3.29	5.27	3.93	4.26	3.29	2.97	3.81	3.96	42.34	7	3	49.25	38.17	1889-00
Northumberland,	Northumberland,	452	2.64	1.97	3.80	4.10	3.47	4.08	3.94	4.13	2.33	2.09	2.58	4.34	39.47	3	2	--------	37.29	1839-41
Phillipsburg,	Center,	1,433	3.24	2.63	2.72	3.79	5.65	3.22	3.36	4.64	3.82	4.44	3.35	3.38	44.25	3	3	46.35	39.69	1888-90
Renovo,	Clinton,	672	2.85	2.39	3.93	2.85	3.79	3.55	3.95	3.70	2.92	2.84	2.70	2.85	38.32	13	8	44.87	32.44	1896-08
Sinnamahoning,	Cameron,	794	1.44	1.29	2.56	1.42	2.33	2.16	4.14	2.04	1.78	2.13	2.31	1.61	25.21	7	4	40.08	10.59	1895-01
State College,	Center,	1,191	2.79	2.94	3.50	2.90	4.06	4.10	4.35	3.72	2.87	2.70	2.41	2.75	39.09	25	22	45.81	30.09	1882-08
Trout Run,	Lycoming,	678	3.09	3.28	5.36	4.22	3.95	5.18	4.09	5.46	3.18	3.66	3.58	4.09	49.14	6	4	58.14	38.96	1898-03
Wellsboro,	Tioga,	1,327	3.07	2.78	3.41	3.29	4.28	4.20	3.65	3.52	2.63	3.53	3.00	3.42	40.78	20	18	61.21	31.79	1888-08
Williamsport,	Lycoming,	530	2.83	2.47	3.58	2.81	2.72	3.83	3.99	4.06	3.21	3.45	2.27	2.99	38.21	20	17	44.15	29.94	1873-08

Greatest annual prec. is at Eaglesmere, 67.09 inches—5 years.
Least annual prec. is at Sinnamahoning, 25.21 inches, 7 years.
Average, 41.46 inches.

TABLE NO. 13.

Precipitation in Middle and Lower Susquehanna Sub-Basins.

Station.	County.	Elev.	Mean Monthly Precipitation in Inches.												Mean yearly.	No. of years of record.	No. of full years.	Max. yearly prec.	Min. yearly prec.	Term of record.
			Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.						
Altoona,	Blair,	1,181	2.71	2.25	2.99	2.79	3.88	3.71	3.36	3.52	2.57	2.27	2.25	2.87	35.17	28	24	44.15	21.17	1859-08
Aqueduct,	Perry,	377	2.65	3.47	3.54	2.76	5.69	3.50	3.90	4.48	3.15	3.39	3.39	2.64	42.41	12	10	50.74	29.35	1889-00
Bedford,	Bedford,	1,062	2.46	1.61	1.65	3.42	3.47	2.91	2.33	2.17	2.78	1.88	3.76	1.73	30.17	9	3	44.65	19.32	1853-61
Blue Knob,	Blair,	2,100	3.60	4.32	3.91	4.24	7.92	3.78	3.16	3.93	3.35	3.33	4.01	3.95	48.59	6	5	54.51	36.79	1889-94
Carlisle Barracks,	Cumberland,	500	2.79	2.63	3.32	3.64	4.76	4.29	4.36	4.21	3.54	3.73	1.68	3.45	42.40	29	19	76.92	23.94	1848-76
Carlisle,	Cumberland,	600	3.14	3.23	3.86	3.03	4.14	3.58	3.63	5.03	3.56	3.49	3.32	2.67	42.68	24	19	55.45	31.17	1869-01
Charlesville,	Bedford,	1,300	2.99	2.59	5.23	2.80	7.18	3.39	4.08	4.05	3.99	3.97	3.20	2.36	45.83	4	2	40.94	39.03	1888-91
Duncannon,	Perry,	356	2.55	4.04	4.21	2.26	4.30	3.57	4.22	4.36	2.62	3.43	3.10	3.23	41.89	8	6	53.39	33.72	1895-02
Ephrata,	Lancaster,	384	2.95	3.34	3.66	3.59	3.90	4.22	4.43	5.34	3.63	3.64	2.58	3.47	41.75	23	14	54.09	34.42	1865-08
Everett,	Bedford,	1,060	2.94	2.36	4.30	2.87	3.74	5.00	4.28	4.85	2.71	2.69	1.88	3.13	40.75	12	8	49.30	35.38	1897-08
Hanover,	York,	600	2.85	2.93	3.60	2.56	3.67	4.22	5.79	5.34	2.74	3.62	1.83	3.65	41.80	5	4	49.10	39.93	1904-08
Harrisburg,	Dauphin,	361	2.70	3.56	2.90	2.85	4.13	4.12	4.06	3.94	3.32	3.21	2.50	2.90	39.19	49	37	59.67	22.30	1840-08
Hollidaysburg,	Blair,	1,200	3.38	3.56	3.47	3.13	5.12	3.54	3.50	3.50	2.91	2.70	2.74	2.97	40.84	12	12	50.69	30.52	1888-98
Huntingdon,	Huntingdon,	650	3.01	2.68	3.72	3.15	4.96	4.33	3.88	3.83	3.16	2.86	2.57	3.19	41.34	27	23	50.81	27.83	1840-08
Kilmer,	Juniata,	429	3.07	3.54	3.20	3.68	6.54	4.40	4.03	4.98	4.06	4.03	3.46	2.84	47.83	6	5	52.05	41.88	1889-94
Lancaster,	Lancaster,	413	2.84	2.96	3.79	3.52	3.72	3.37	2.90	3.83	3.04	2.94	2.65	2.81	38.37	18	6	41.36	32.12	1839-42 1888-02
Lebanon,	Lebanon,	458	3.56	3.70	3.95	3.11	4.56	3.77	4.58	4.65	3.04	3.74	3.05	3.68	45.39	26	25	56.68	37.22	1883-08
Mifflin,	Juniata,	490	2.52	3.23	3.69	2.17	3.55	3.77	3.87	3.29	2.83	2.85	2.45	2.91	37.15	9	7	44.12	25.88	1895-03
Mifflintown,	Juniata,	445	2.96	2.18	4.10	3.12	4.55	3.59	3.75	4.92	3.01	3.29	1.40	2.99	39.88	6	5	52.48	40.27	1903-08
Mount Joy,	Lancaster,	360	3.06	2.28	3.34	3.33	4.67	3.84	3.25	4.39	3.66	2.84	3.09	2.89	40.64	12	3	49.88	33.75	1857-73
New Bloomfield,	Perry,	400	2.49	3.42	4.58	3.37	6.30	2.88	4.28	4.89	5.65	4.16	5.60	2.94	50.56	3	2	49.42	48.61	1888-90
New Germantown,	Perry,	873	2.84	2.05	3.26	2.91	4.50	5.06	4.68	4.49	3.52	3.75	1.52	3.48	41.77	6	5	48.13	35.22	1903-08
Northumberland,	Northumberland,	452	2.64	1.97	3.80	4.10	3.47	4.08	3.94	4.13	2.33	2.09	2.58	4.34	39.47	3	2	--------	37.29	1839-41
Petersburg,	Huntingdon,	678	3.47	3.14	2.50	4.00	6.90	3.19	4.25	3.85	2.95	4.44	4.27	3.11	46.07	3	1	--------	--------	1889-91
Phillipsburg,	Center,	1,433	3.24	2.63	2.72	3.79	5.65	3.22	3.36	4.64	3.82	4.44	3.35	3.38	44.25	3	3	46.35	39.69	1888-90
Plainfield,	Cumberland,	--------	3.23	3.52	3.83	5.58	3.92	3.42	4.60	5.39	3.35	4.89	2.42	2.93	42.08	4	2	50.71	39.33	1872-75
Selinsgrove,	Snyder,	455	2.93	3.05	4.06	2.99	4.46	4.00	4.41	4.52	3.46	3.65	2.83	3.30	43.66	21	18	56.33	31.28	1888-08
Sunbury,	Northumberland,	450	1.53	1.84	3.16	1.69	1.67	3.29	2.62	3.18	2.07	2.23	2.08	2.32	27.68	9	--------	--------	--------	1895-03
York,	York,	385	2.94	3.29	3.70	2.76	3.86	3.64	4.47	4.28	3.58	3.22	2.95	3.09	41.78	21	19	53.09	32.40	1888-08
York Sulphur Springs,	Adams,	606	2.30	3.47	4.04	3.08	2.86	3.69	3.59	6.23	2.85	4.04	3.05	1.57	40.77	6	2	--------	33.88	1871-76

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TABLE NO. 14.

Precipitation in the Potomac River Basin.

Station.	County.	Elev.	Mean Monthly Precipitation in Inches.												Mean yearly.	No. of years of record.	No. of full years.	Max. yearly prec.	Min. yearly prec.	Term of record.
			Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.						
Chambersburg,	Franklin,	618	2.32	2.93	3.03	2.80	3.81	3.85	3.23	4.15	2.82	3.21	2.94	2.38	37.47	27	14	42.90	28.30	1880-01
Fountaindale,	Adams,	--------	3.28	4.11	5.07	3.58	4.64	3.90	3.12	3.76	4.23	3.58	2.56	3.41	45.20	6	2	48.83	47.11	1867-72
Gettysburg,	Adams,	600	2.99	2.77	3.06	3.51	4.22	3.71	3.47	3.72	3.17	3.12	2.85	3.26	39.85	39	30	52.27	28.62	1839-08
Hyndman,	Bedford,	933	3.98	2.51	5.22	3.11	4.01	5.07	2.34	4.92	2.70	1.44	1.91	3.11	40.34	3	3	48.89	33.93	1906-08
Marion,	Franklin,	640	3.35	2.70	3.53	2.77	3.73	4.61	5.06	4.09	2.35	2.75	1.65	3.43	40.01	6	5	46.95	31.05	1903-08
McConnellsburg,	Fulton,	875	3.41	3.25	4.44	3.43	6.48	4.08	4.66	5.28	3.03	3.42	3.61	3.12	48.21	6	4	52.93	34.51	1888-93

Greatest annual prec. is at McConnellsburg, 48.21 inches—6 years.
Least annual prec. is at Chambersburg, 37.47 inches—27 years.
Average, 41.83 inches.

EXPOSURE OF GAGES.

"2. The exposure of gages is a very important matter. The wind is the most serious disturbing cause in collecting precipitation. In blowing against the gage, the eddies of wind formed at its top and about the mouth carry away rain, and especially snow, so that too

to centre of gage.

"Stations which use a recording gage will expose a standard 8-inch gage for use as snow gage, and during the warm season may use the same for checking reading of rainfall in cases of emergency.

"4. Snow fall is preferably measured as depth of water rather than by the thickness of layer it forms on the ground. When it can not be measured by melting, it is customary to take one-tenth the measured depth of the snowfall on a level open place as the water equivalent of the snowfall. The relation between the depth of snow and depth of melted snow is very different in different cases, depending on the wetness of the snow. The equivalent depth of water in some cases is as great as one-seventh of the depth of snow, and in others may be as small as one thirty-fourth. It is always best to reduce snow to a liquid condition for measurement, and the simplest way of doing this is to add to it a known volume of water sufficient to reduce it to a state of slush.

"Two forms of rain gages are in general use: 1. The Standard 8-inch cylindrical gage. 2. The Automatic, tipping bucket, self recording gage. The former is merely an 8-inch cylinder, exposed to the atmosphere so as to catch the rain as it falls. The depth of water in it is measured each day by the observer. The latter gage is automatic in that each .01 inch of rain collected is recorded on a register, and the observer simply reads this register each day. This gives a continuous record and also records each storm separately without the necessity of frequent observations."

TABLES OF PRECIPITATION.

The following records of Pennsylvania rainfall give, by drainage basins or sub-basins, the station; the average monthly; the mean, maximum and minimum yearly precipitations; the length of record; and the number of complete years included therein. The full daily and monthly records at each station have not been included on account of the space necessary, and by reason of the fact that the records will show data in sufficient detail for most uses. The Commission wishes to express its willingness to furnish the detail data concerning individual records upon request.

CHAPTER IV.

DROUGHTS.

The State of Pennsylvania, together with the larger part of the eastern and central sections of the country, has, during the past summer and fall, experienced an excessive and long continued drought, while since 1894 this region has experienced four periods of exceptional drought, each effectively illustrating the dependence of population, industry and commerce upon an adequate water supply, for as population, industry and transportation increase, the use of water becomes more extensive, and drought conditions are more acutely felt. The low condition of the sources of water supply, occurring during extended dry periods, impedes navigation and water power development, restricts the water supply for towns, cities and industries, and for steam transportation, etc., and injures agriculture, while the water is less fit for use, on account of the concentration of the impurities which are carried. Droughts, like floods, cause severe monetary losses and it is the certainty of their recurrence that retards or prevents the development of our streams to their maximum usefulness. The loss occasioned by droughts is usually of a less tangible character and more difficult to estimate than that resulting from floods, for drought conditions are not confined to the river valleys, as are the floods, so that in the aggregate the loss may be quite as great because more far-reaching.

Recognizing, therefore, that it is during times of drought that the true value of streams is to be determined, and anticipating that the drought of the summer and fall of 1908 might develop into one of exceptional intensity, the Water Supply Commission determined to make a more thorough study of rainfall, stream flow and water supply conditions throughout the remainder of the drought period than had been done in the past. The decision proved itself to be well founded as the data collected indicate that seldom, if ever, has this State in general been subjected to more serious drought conditions. The method of study adopted involved:

1. A broad system of stream gagings, and the collection of miscellaneous stream flow data from various local sources.
2. A census of the effect of low water conditions on municipal and industrial water supplies.
3. An analysis of the United States Weather Bureau precipitation records.
4. A comparison of the data collected with that previously recorded concerning past droughts.

TABLE NO. 15.

Precipitation in the Allegheny River Sub-Basin.

Station.	County.	Elev.	Mean Monthly Precipitation in Inches.												Mean yearly.	No. of years of record.	No. of full years.	Max. yearly prec.	Min. yearly prec.	Term of record.
			Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.						
Allegheny Ars.,	Allegheny,	704	2.32	2.33	2.78	3.22	3.75	3.76	3.34	3.44	3.22	3.08	2.74	3.06	37.04	36	29	53.02	25.62	1836-9
Baldwin,	Butler,	1,404	2.34	2.63	4.19	3.35	4.06	4.52	4.77	3.19	3.53	2.92	1.81	3.18	40.49	3	1	39.18	39.18	1906-0
Brookville,	Jefferson,	1,235	3.01	2.57	3.32	3.14	3.81	4.18	4.96	3.82	3.27	2.60	3.22	3.07	40.97	22	20	55.48	26.23	1885-0
Cassandra,	Cambria,	2,100	3.18	2.94	4.21	2.97	4.31	4.86	4.68	4.09	2.94	2.80	2.93	3.19	43.10	14	13	48.24	38.06	1894-0
Clarion,	Clarion,	1,530	3.78	3.53	4.08	3.51	4.33	4.81	5.57	3.59	3.58	3.01	2.74	3.58	46.11	16	11	58.56	37.36	1888-0
Corry,	Erie,	1,410	3.39	4.34	2.55	3.18	4.44	5.11	3.49	4.17	4.39	3.82	4.29	3.31	46.48	8	7	65.66	36.43	1886-9
Derry Station,	Westmoreland,	1,172	3.69	3.08	4.99	3.76	3.57	5.20	5.25	3.97	3.30	2.80	2.82	3.54	44.97	13	11	51.19	39.10	1896-0
DuBois,	Clearfield,	1,399	3.12	3.93	3.06	3.45	4.27	4.73	4.61	2.89	3.44	2.25	3.32	3.16	42.23	7	6	48.29	34.54	1891-9
Franklin,	Venango,	955	3.37	2.93	3.50	2.70	3.64	4.67	4.95	3.70	3.64	2.85	3.19	3.36	42.70	38	31	59.79	31.70	1840-0
Freeport,	Armstrong,	772	3.79	3.32	3.86	3.26	3.92	4.10	4.37	3.58	2.70	2.49	3.13	3.45	41.97	32	29	57.93	30.83	1888-0
Grove City,	Mercer,	1,250	3.15	2.13	6.25	4.95	3.29	2.71	6.97	1.51	2.49	2.03	1.47	3.39	40.38	2	2	41.97	38.85	1907-0
Heers Is. Dam,	Allegheny,	710	2.50	2.13	4.23	2.94	3.05	4.56	3.66	2.96	2.05	2.28	1.87	2.73	34.96	11	10	39.48	28.27	1898-0
Indiana,	Indiana,	1,350	3.05	2.25	5.29	4.01	4.40	4.56	4.80	3.74	3.09	3.01	2.07	3.64	43.91	6	5	47.79	41.75	1903-0
Johnstown,	Cambria,	1,184	4.07	3.90	4.06	3.95	4.35	5.19	4.70	4.52	3.53	2.65	3.16	3.62	47.70	28	25	57.39	37.55	1868-0
Ligonier,	Westmoreland,	1,750	2.74	4.55	2.87	3.96	4.94	5.35	4.52	4.15	3.92	2.47	2.53	3.41	45.44	5	1	--------	50.24	1890-9
Lycippus,	Westmoreland,	1,420	3.58	3.40	4.10	3.47	4.26	4.32	4.97	4.27	2.96	2.63	2.61	3.61	44.18	19	18	71.22	31.85	1890-0
Mahoning,	Armstrong,	819	3.17	3.35	2.27	3.18	3.40	3.34	2.99	3.20	3.09	2.64	2.71	2.49	35.83	13	9	51.38	28.84	1884-9
Meadville,	Crawford,	1,078	3.10	3.88	3.03	3.26	4.33	5.25	3.09	3.99	3.58	3.53	2.78	3.41	43.23	17	2	--------	40.22	1889-
Oil City,	Venango,	1,045	3.35	3.34	3.45	2.87	3.93	4.75	4.61	3.01	3.58	2.52	3.41	3.21	42.04	26	23	50.62	22.80	1877-
Parker's Landing,	Armstrong,	888	3.25	3.27	3.72	3.38	3.98	4.73	4.68	4.05	3.30	2.59	2.98	3.11	42.84	24	23	57.29	32.52	1885-
Pittsburg,	Allegheny,	842	2.81	2.51	3.04	2.91	3.36	3.78	4.38	3.12	2.36	2.32	2.44	2.76	35.79	47	44	50.61	23.26	1840-
Ridgeway,	Elk,	1,390	2.83	2.68	3.27	2.68	4.32	3.64	4.43	3.57	2.91	2.35	2.89	2.80	38.37	9	8	44.71	29.92	--------
Saegerstown,	Crawford,	1,116	3.21	3.31	3.43	2.95	4.75	4.44	4.80	4.19	3.76	2.98	3.39	3.37	44.48	17	17	52.20	31.97	1892-
Saltsburg,	Indiana,	891	3.29	2.91	3.31	2.93	3.69	4.08	4.08	3.39	3.13	2.57	2.16	3.18	38.72	20	13	58.28	35.00	18[illegible]4-
Shinglehouse,	Potter,	1,475	2.63	1.84	2.51	2.77	5.04	3.75	3.68	3.78	3.81	2.40	3.31	3.11	38.63	8	4	48.29	37.35	1896-
Smethport,	McKean,	1,500	2.99	2.28	3.68	2.79	4.33	4.14	4.46	3.96	3.65	3.03	3.17	3.13	41.61	21	7	47.35	30.65	1839-
Springdale,	Allegheny,	752	3.49	1.90	5.06	3.40	3.79	4.50	4.86	4.47	3.44	2.98	1.78	3.41	43.80	4	3	43.16	37.83	1905-
Stoystown,	Somerset,	--------	3.22	4.75	2.90	3.46	5.03	3.79	4.78	2.42	2.70	2.26	2.91	3.62	41.84	5	4	47.91	40.29	1891-
St. Marys,	Elk,	1,740	2.89	2.47	3.60	3.16	4.02	4.42	5.11	3.61	3.39	3.04	2.79	2.88	41.29	13	2	44.65	38.57	1896-
Tarentum,	Allegheny,	950	3.00	1.88	2.76	2.14	1.83	3.38	4.03	2.43	3.47	2.84	2.13	4.61	34.50	9	2	40.90	37.50	1872-
Warren,	Warren,	1,137	2.88	2.70	2.91	3.13	4.49	4.15	5.21	3.91	3.74	3.02	3.47	3.23	42.84	26	23	58.22	32.54	1840-

Greatest annual prec. is at Johnstown, 47.70 inches—28 years.
Least annual prec. is at Tarentum, 34.50 inches—9 years.
Average, 40.92 inches.

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TABLE NO. 16.

Precipitation in the Monongahela River Sub-Basin.

Station.	County.	Elev.	Mean Monthly Precipitation in Inches.												Mean yearly.	No. of years of record.	No. of full years.	Max. yearly prec.	Min. yearly prec.	Term of record.
			Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.						
Brownsville,	Fayette,	736	3.37	2.08	1.89	1.95	2.00	3.90	4.16	3.40	2.58	2.56	2.16	2.36	32.41	14	5	37.87	30.05	1870-85
California,	Washington,	770	2.54	2.38	4.90	3.32	2.81	4.96	4.71	4.02	2.43	2.36	1.40	3.25	39.08	8	6	44.19	33.51	1901-08
Confluence,	Somerset,	1,324	3.99	3.56	4.19	3.49	4.14	4.24	5.21	3.74	2.95	2.74	3.17	3.61	45.03	34	32	60.19	31.38	1875-08
Greensboro,	Greene,	768	3.07	2.94	4.12	3.41	4.34	4.89	5.39	3.24	2.83	2.90	2.96	3.04	43.13	21	19	65.15	33.76	1888-08
Irwin,	Westmoreland,	884	2.81	2.21	4.67	3.52	3.18	4.96	4.73	3.94	2.37	2.43	2.44	3.21	40.47	13	11	49.62	30.96	1896-08
Lock No. 4,	Washington,	735	3.08	2.82	3.76	3.10	3.89	3.96	4.79	3.19	2.75	2.54	2.62	2.94	39.44	23	23	62.75	24.88	1886-08
New Geneva,	Fayette,	806	4.30	3.12	3.33	2.61	3.26	4.36	4.49	4.11	3.12	2.48	2.55	2.81	40.54	12	8	48.97	28.09	1877-88
Somerset,	Somerset,	2,250	4.15	3.77	4.32	4.42	5.21	4.72	4.33	4.33	3.10	2.84	3.44	3.66	48.20	30	28	64.05	31.48	1840-61 1888-08
Uniontown,	Fayette,	999	3.67	3.10	4.48	3.67	4.40	4.72	5.66	3.88	3.08	3.00	3.41	3.58	46.65	23	17	70.68	31.95	1839-40 1888-08
West Newton,	Westmoreland,	782	3.28	3.04	4.08	3.33	3.44	4.03	4.78	3.32	2.19	2.14	2.41	3.31	39.25	18	17	48.29	29.57	1891-08

Greatest annual prec. is at Somerset, 48.20 inches—34 years.
Least annual prec. is at Brownsville, 32.41 inches—14 years.
Average, 41.42 inches.

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TABLE NO. 17.

Precipitation in the Ohio River Sub Basin.

Station.	County.	Elev.	Mean Monthly Precipitation in Inches.												Mean yearly.	No. of years of record	No. of full years.	Max. yearly prec.	Min. yearly prec.	Term of record.
			Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.						
Alleppo,	Greene,	1,135	3.15	2.34	4.91	3.86	3.75	3.97	5.16	3.38	2.54	2.52	2.00	3.79	41.37	8	8	54.53	34.69	1901-08
Beaver Dam,	Beaver,	703	2.70	2.23	4.12	2.97	3.10	4.86	4.04	4.01	2.52	2.08	2.69	2.71	38.03	16	14	48.08	25.51	1893-08
Cannonsburg,	Washington,	936	3.22	2.22	3.03	2.81	3.21	3.52	4.44	2.94	3.46	2.47	2.47	2.41	36.20	28	19	43.96	24.69	1840-96
Claysville,	Washington,	1,127	2.58	1.99	5.38	3.48	3.45	5.02	5.48	3.90	2.79	2.67	1.41	2.89	41.26	5	4	48.33	35.18	1904-08
Davis Is. Dam,	Allegheny,	703	2.59	2.66	2.72	2.90	3.48	4.32	4.33	2.90	2.20	1.90	2.53	2.95	36.55	18	17	44.80	26.04	1891-08
Ellwood Junc.,	Beaver,	751	2.59	2.05	3.89	3.22	3.48	4.89	4.85	3.59	2.52	2.10	2.44	2.86	38.48	15	14	46.98	27.66	1894-08
Greenville,	Mercer,	950	3.39	2.60	3.89	2.94	3.24	4.32	5.67	3.83	3.00	3.21	3.02	2.93	42.04	17	9	49.96	28.43	1871-08
New Castle,	Lawrence,	876	2.80	2.62	2.67	2.36	3.16	4.34	4.72	2.91	3.29	2.54	2.58	2.51	36.50	20	16	52.53	26.05	1870-94
Skidmore,	Lawrence,	1,000	2.31	1.92	3.57	2.90	3.66	3.65	4.36	3.76	2.44	2.27	1.44	2.07	34.38	5	3	41.64	31.48	1904-08
LAKE ERIE BASIN.																				
Erie,	Erie,	713	2.99	2.90	2.69	2.44	3.54	3.72	3.15	3.16	3.55	3.74	3.50	2.94	38.32	36	35	55.23	26.72	1873-08

Greatest annual prec. is at Greenville, 42.04 inches—17 years.
Least annual prec. is at Skidmore, 34.38 inches.
Average, 38.31 inches.

CHAPTER IV.

DROUGHTS.

2. A census of the effect of low water conditions on municipal and industrial water supplies.

3. An analysis of the United States Weather Bureau precipitation records.

4. A comparison of the data collected with that previously recorded concerning past droughts.

It is difficult to state just what constitutes a drought, for the same deficiency in rainfall may cause drought conditions in one place and not in another, or in one year and not in another. A deficiency of 50 per cent. in a region subject to heavy rainfall may not cause so serious consequences as the same deficiency in a more arid region, and such a deficiency in a year preceded by years of excessive precipitation may not effect the water supply so materially as in a year preceded by several dry years, while the same precipitation, if distributed differently in two years, may cause drought conditions one year and not another. There may be said to be two kinds or degrees of drought; the first occurring when the rain is inadequate to satisfy the growing crops, but the streams, being maintained by ground water flow, remain at normal stage; and the second, when neither the previous ground condition nor the rains are sufficient to maintain normal ground and surface flow. The former affects chiefly the crops, while the latter affects water supplies of cities, towns and industries, as well as navigation, transportation and water power.

Noteworthy droughts visited this State in the years 1876, 1881, 1887, 1895, 1900, 1904 and 1908, and each was accompanied by loss and inconvenience to population and to industry, affecting most parts of the State, and extending over many neighboring States, while stream flow became restricted and water supplies diminished.

Droughts usually occur during the summer and fall months, and, in this State, usually reach their most acute stage in September or October, for at this time precipitation deficiencies are often great, and the ground water has been drawn down to a low ebb. The steady, equinoxial rains of the latter part of September have, in certain droughts, relieved conditions and improved sub-surface and underground storage to such an extent that large precipitation deficiencies in October and November have failed to bring the water supplies to the exhausted condition attained in September.

NOTABLE DROUGHTS IN PENNSYLVANIA.

Pennsylvania has probably not been subjected to such frequent and devastating droughts as have other parts of the country, the central states, occupying the lower and middle Mississippi valley, and the Lake region, having suffered more frequently from this cause than has this State. A severe drought extended over New England, the Middle Atlantic states, the Ohio valley and lower Lake region, in 1876, and in 1881 a serious drought affected practically the whole country east of the Mississippi river, and lasted from July to September. At Pittsburg from May 7th to 29th, 1881, 23 days, but 0.6 of an inch of rain fell; from June 18th to July 15th, 28 days, only 1.0 inch fell, and from August 1st to September 25th, 56 days, the precipitation was but 1.25 inches. The most striking characteristic of this drought was its duration and the attendant high temperature, causing serious damage to vegetation and crops, and, in its later stages, a scarcity of water for domestic and manufacturing use. In many places scores of shops and factories were obliged to shut down for lack of water. In 1887 a drought affected the western portion of the State.

"The greatest drought this country has experienced in the last 100 years, both as to intensity and extent of territory covered, culminated in the Middle Mississippi and Missouri valleys in 1894, and in the Lake region and Atlantic coast districts in 1895. The drought of 1894 was the culmination of a period of deficient precipitation and high temperatures that began during the early summer of 1893. The subsoil, from which the surface soil by capillarity draws a portion of its moisture, had become appreciably dessicated and the way was open to a disastrous drought should the spring and summer rains fail. The rains of April were generally deficient in almost all parts of the country, except the northern Pacific coast, the Upper Mississippi valley and the Upper Missouri valley, although the deficiency east of the Mississippi was not especally marked, except along the south Atlantic coast. In May the greatest deficiency in precipitation, 3 inches or more, occurred in the States of South Dakota, Nebraska, Kansas, Iowa, Illinois and Missouri. In June, July and August the drought continued unabated in these States and extended into the upper Mississippi and Ohio valleys, the Lake region and portions of the Northeast and Middle Atlantic States. The months of July and August were exceptionally dry in the Ohio valley, the Lake region, the Missouri valley and the middle and upper portions of the Mississippi valley. Over this great region less than two inches of rain, on the average, fell in the two months. The shortage of rainfall during 1895 was almost as great and as widespread as in the previous year, but the region of greatest intensity was shifted from the middle Mississippi valley eastward to the Lake region and upper Ohio valley.

"Since the drought of these two years will probably become historic, a record of the departure of the anual precipitation from the normal is here given for future reference and comparison."*

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*From Bulletin Q, "Climatology of the United States," pages 51-52, 1904.

TABLE NO. 18.

Precipitation Departures in the Drought Years of 1894 and 1895.

District.	Departure, in inches.	
	1894.	1895.
New England,	—8.1	—5.3
Middle Atlantic States,	—5.3	—9.1
South Atlantic States,	—4.2	—3.7
Ohio Valley and Tennessee,	—11.0	—11.0
Upper Mississippi Valley,	—12.0	—7.8

In 1900 there occurred a period of low rainfall and low condition of the streams, caused by a dry spring and an exceptionally hot summer and fall, the minimum stream stages being reached the latter part of September and first half of October. The streams of the Susquehanna basin reached lower points than before known at many places, the Susquehanna at Harrisburg being approximately one inch lower than during the drought of 1895. These conditions continued, slightly relieved, until the latter part of November, when heavy rains broke the drought and raised the streams into sudden freshet condition. Water supplies for domestic and industrial purposes were affected during this period and considerable losses resulted. The following table shows the precipitation and temperature and their departure from the state normal by months, during the year 1900.

TABLE NO. 19

Showing Average Monthly Precipitation and Temperature in Pennsylvania for 1900 and the Variation from the Normal.

Month.	Average precipitation in inches.	Deficiency in inches, below normal.	Excess above normal in inches.	Temperature.	
				Deficiency.	Excess.
January,	2.64	0.70			2.0°
February,	4.22		1.05	1.6°	
March,	3.61		0.46	3.6°	
April,	1.57	1.57			1.3°
May,	2.79	1.96			0.7°
June,	3.60				1.0°
July,	4.86				2.5°
August,	3.33	0.64			5.1°
September,	1.77	1.52			4.7°
October,	2.74	0.80			7.7°
November,	4.10				3.2°
December,	2.08	0.98		0.7°	
Total of year,	37.31	8.17	1.51	5.9°	28.2°
Total for year,		6.66			22.3°

The drought of 1904 did not extend so uniformly over the State as did those of 1895, 1900 and 1908, for in the Delaware Basin a dry spring was succeeded by a wet summer and fall, and the drought was less in evidence, so that the State averages of precipitation do not truly indicate the conditions. Table No. 20 showing the monthly precipitation in each drainage basin indicates that the deficiency in rainfall began over the Susquehanna and Ohio Basins in August, but that it did not reach serious proportions until November. This was, therefore, a late drought, its most acute stage coming with the advent of winter and being broken in most sections about December 10th, and beginning too late to materially injure the summer crops. The streams reached very low stages, some of them falling almost as low as, and a few even lower than, in 1900, and cities, towns and industries suffered through insufficiency of water supply, causing the temporary closing down of numerous industrial works. It has been stated that it was the loss caused during this drought that led one of the railroad corporations of this State to spend many millions of dollars in a new water supply system. The average precipitation during the year 1904 was 3.77 inches less than the normal for the State, and was the least since 1900. At the same time it was the coldest year since the organization of the Weather Bureau Service in 1888, the daily deficiency in temperature being 2.7 degrees.

TABLE NO. 20.

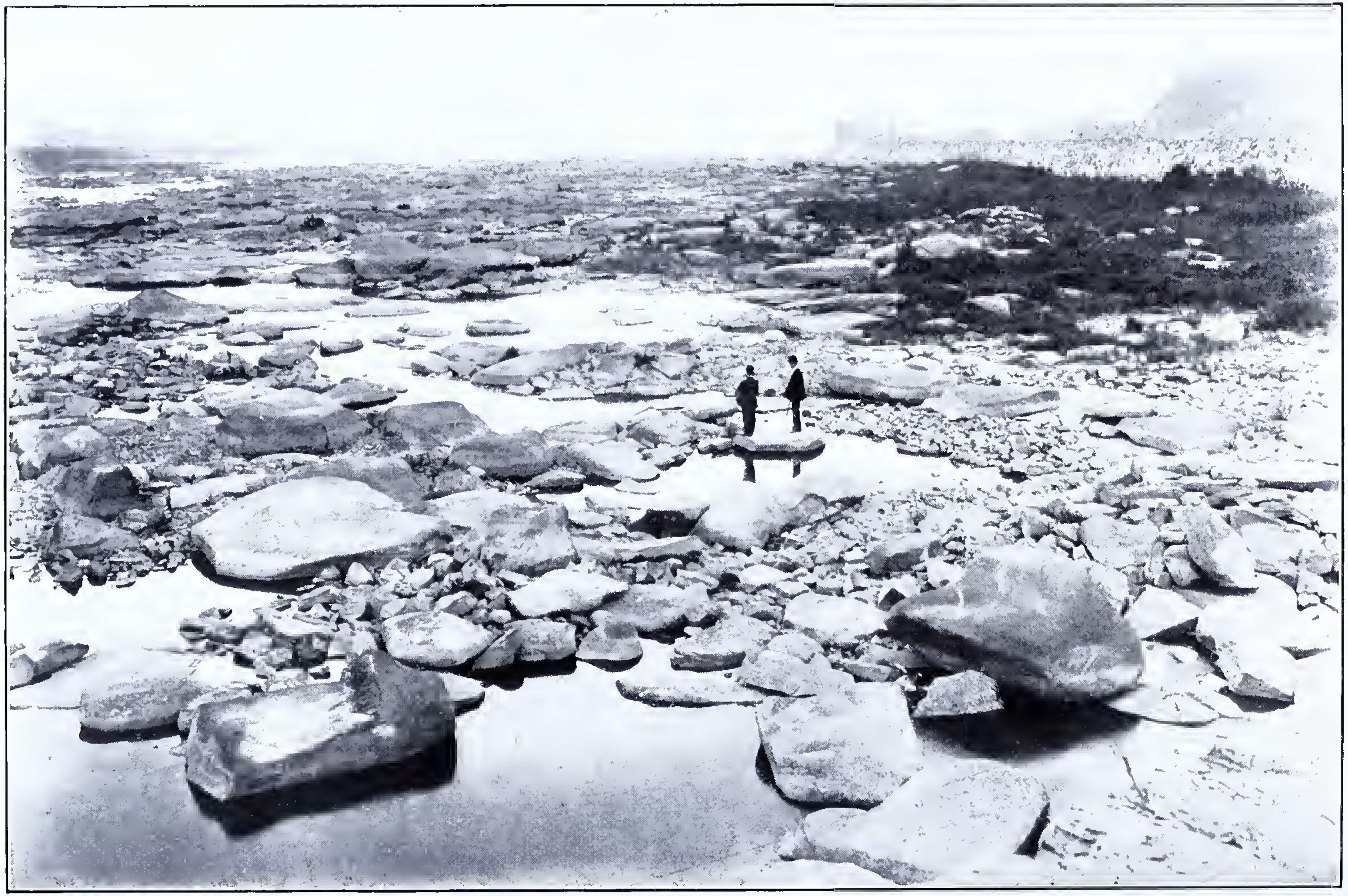
Showing Monthly Precipitation and Departure from Normal in the Three Principal Drainage Basins for 1904.

Month.	Delaware basin.		Susquehanna basin.		Ohio basin.	
	Deficiency in inches.	Excess in inches.	Deficiency in inches.	Excess in inches.	Deficiency in inches.	Excess in inches.
Janaury,		0.20		0.71		0.40
February,	1.66		0.80		0.15	
March,	0.34			0.27		1.69
April,	0.79			0.57		0.90
May,	1.20		0.32		0.10	
June,		0.43		0.07	0.31	
July,	0.64			0.66		0.21
August,		2.16	0.80		0.07	
September,		1.20	0.05		0.93	
October,		1.01	0.65		0.57	
November,	1.39		2.22		2.70	
December,	1.08		1.05		0.70	
Total deficiency for year,	2.30		3.61		2.33	

THE DROUGHT OF 1908.

The drought of 1908 first became noticeable in August and before the end of November it had been felt in all parts of the State with results probably more serious than those of any other such visitation Pennsylvania has received. Previous to August, although there had been a large deficiency of precipitation in June, and for three weeks in July, the ground storage, filled by an excess of about 5 inches of precipitation during February, March, April and May, had maintained stream and ground water flow. During the latter part of that month, however, the surface waters became noticeably low and in the next few weeks depreciated rapidly, reaching a minimum toward the end of September. Rains over most of the State on September 28th and 29th raised the streams somewhat, but the continued draft on the ground storage, and lack of rain in any appreciable amount until October 10th and 11th, again brought the surface and ground waters to a low stage. On the 10th and 11th of October, light rains ocurred, sufficient at some points to improve conditions a little; but between this date and October 24th, the streams generally reached stages approximately as low as in September. Sufficient precipitation to materially improve conditions did not occur until October 24th, when there were five days of more or less continuous precipitation. In November, the total precipitation was less than that during any of the previous months, and many of the streams again fell quite, or nearly, to the September minimum. Little rain or snow fell in the early part of December, and the condition of the streams was maintained generally at a very low stage through the month. The smaller creeks naturally showed the effect of the occasional rains by appreciable rises, but the larger rivers hardly felt their influence and remained quite uniformly close to the September minimum throughout the rest of the year.

As seen on Table No. 20, the precipitation was above the normal during February, March, April and May, January being slightly less than the average for that month, so that up to June 1st there had been an excess of precipitation of 5.30 inches, which, when considered with an excess of 2.67 inches during 1907, should have resulted in full reservoirs, saturated ground and subsoil and high ground water level. In June and for the first three weeks in July, came the first noticeable deficiency, broken on the 21st of July by heavy and disastrous thunder storms, heaviest where the lack of rain had been the greatest. These heavy storms caused an excess of precipitation in the Susquehanna basin for the month of August, and only small deficiencies over the rest of the State, but aided little in bettering stream conditions owing to the dryness of the soil, the requirements of growing vegetation, high temperature, and the character of the precipitation, which fell largely in heavy and destructive thunder storms, little water entering the ground to aid the springs and wells. The surprising feature is that by the 28th of September, when the accumulated deficiency of precipitation for the year had only reached about 0.5 of an inch, the surface waters had seemingly reached a minimum, not to be exceeded during the rest of the year, although followed by three months of deficiency in precipitation. This may be explained, however, by the fact that the ground water had been reduced by the four dry months preceding the last of September, the few rains during that period aiding little in replenishing it, while the rains of September 28th to 30th, October 10th to 11th, and October 24th to 30th, were long, soaking rains, which saturated the ground and came off gradually, their influence being felt over considerable periods, while had they been short, violent storms, similar to those of July, the beneficial effect upon the streams would doubtless have been less. If during the remainder of the year, following the period of low stream flow of the latter part of September, the precipitation had been normal, the condition would have occurred of exceptionally low stream stage, and restricted water supply, during a year which showed a total deficiency in precipitation for the State of only about one-half an inch. This drought, therefore, indicates the importance of rain during the summer months and seems somewhat at variance with the theory that a wet spring insures good stream flow in the summer and fall, and that summer rain is not essential to the streams. It also shows the importance of the character of the precipitation in maintaining stream discharge, the severe thunder storms of July, although bringing the precipitation for that month above or near the normal, having improved the stream flow but little, while the few, light, prolonged rains of September and October preserved it at about the September minimum through October and November. The State average precipitation for the year was 38.79 inches, the average deficiency being 3.98 inches, while the monthly excess of temperature exceeded the monthly deficiency by 13.4 degrees.



Susquehanna river at York Haven during the drought of 1908—The Power Company head race to the right.

TABLE NO. 21.

Table Showing Departure of Precipitation in 1908 from the Normal by Drainage Basins.

Month.	Delaware basin.		Susquehanna basin.		Ohio basin.	
	Deficiency in inches.	Excess in inches.	Deficiency in inches.	Excess in inches.	Deficiency in inches.	Excess in inches.
January,	0.50	--------	0.47	--------	0.68	--------
February,	--------	1.74	--------	2.13	--------	1.08
March,	0.41	--------	--------	0.53	--------	2.35
April,	0.33	--------	--------	0.23	--------	0.81
May,	--------	2.19	--------	2.45	--------	1.95
June,	1.69	--------	2.21	--------	1.70	--------
July,	0.06	--------	--------	0.96	0.34	--------
August,	0.38	--------	1.60	--------	1.39	--------
September,	1.77	--------	1.63	--------	2.09	--------
October,	1.05	--------	1.00	--------	2.01	--------
November,	2.37	--------	1.90	--------	1.91	--------
December,	0.80	--------	0.72	--------	0.18	--------
Total for year,	9.36	3.93	9.53	6.30	10.30	6.19
Total deficiency for year,	5.43	------	3.23	--------	4.11	--------

It will be seen by Table No. 21 that the Susquehanna Basin experienced the least deficiency in precipitation, 3.23 inches, against 4.11 inches over the Ohio and 5.43 inches over the Delaware Basin, being equivalent to 8 per cent., 10 per cent. and 12 per cent. respectively. In the Susquehanna and Ohio Basins the spring precipitation was in excess of the normal, while in the Delaware basin, March and April showed deficiencies, so that it is to be expected that streams would be lowest in the Delaware and least affected in the Susquehanna basin. The greatest deficiency in precipitation for the year was recorded at Kennett Square, Chester county, where 15.79 inches, or 31.5 per cent. less than the normal rain fell; at Erie, there was 11.83 inches, or 30.7 per cent. less than the normal, and at Seisholtzville, Berks county, 11.29 inches, or 22.4 per cent. less than the normal was recorded, the least actual precipitation recorded in the State being at Erie, 26.72 inches.

Streams reached stages lower in some instances than hitherto recorded, while springs and wells, which were said never to have failed before, went dry, and municipal and industrial storage reservoirs became exhausted. In fact there is no previous record of such a general shortage in the available water supply of the state. In order to determine accurately the discharge of streams during such periods, and their value for supply purposes, extensive stream flow measurements were made by the Commission during this period. A total of 160 measurements were made during August, September and October, covering 124 streams. The subsequent statements and data presented are based upon these measurements and upon the results of an extensive census, including nearly every community supplied with water in Pennsylvania, to determine the effect of the drought upon water supplies.

The following table shows the minimum stage of important streams during the 1908 drought, compared with the available data for previous droughts.

TABLE NO. 22.

Minimum Stage Reached During Drought of

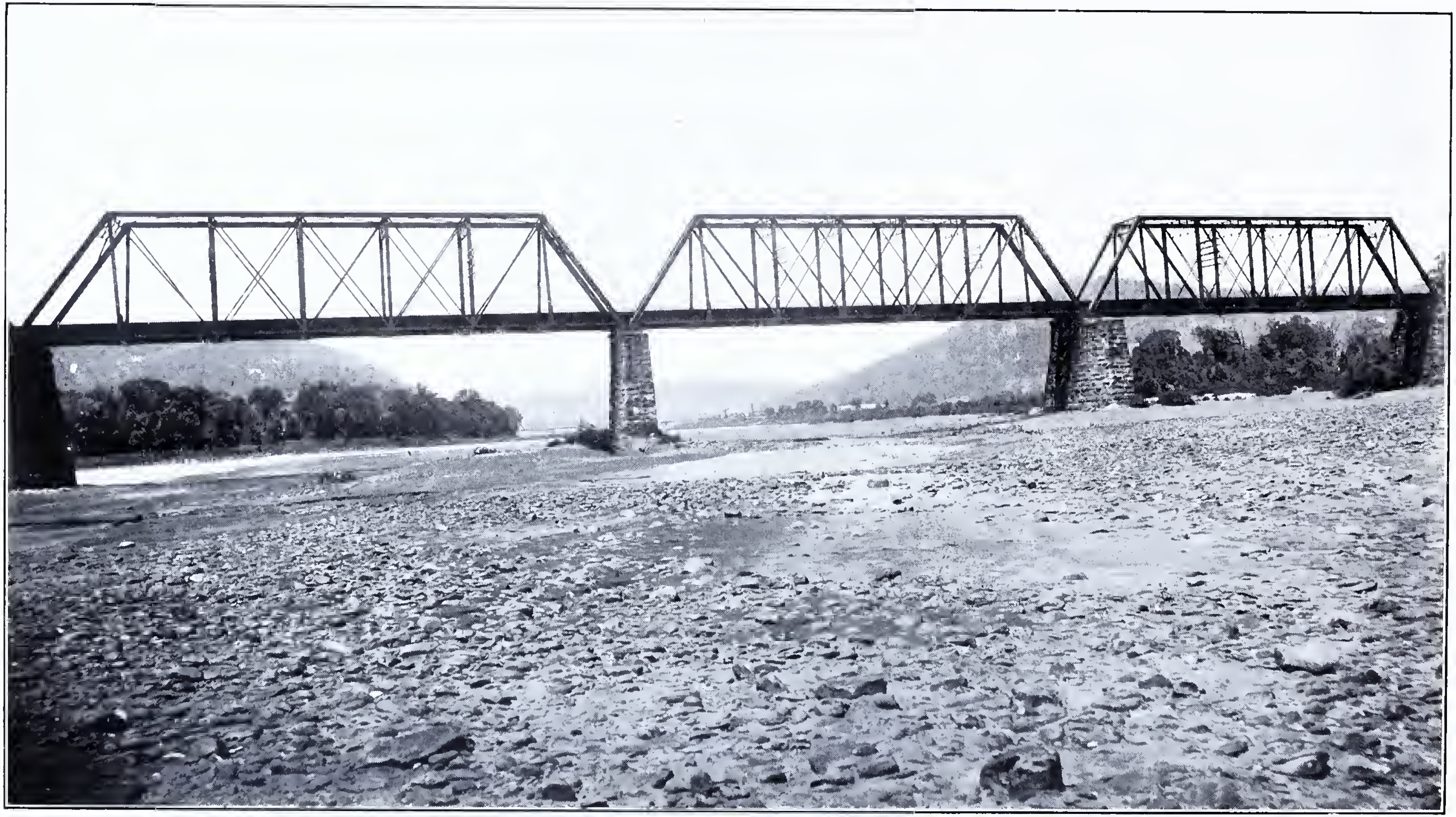
Name of Stream.	1881	1891	1892	1895	1900	1904	1908
Delaware river at Port Jervis,		—0.8				+0.4*	—1.1
Susquehanna river at Harrisburg,				+0.1	—0.04	+1.3	+0.2
North Branch at Wilkes-Barre,					+2.1	+3.1	+2.0
West Branch at Williamsport,				—0.2	+0.1	+0.2	+0.2
Allegheny river at Freeport,	—0.6			+0.4	+0.2	+0.9	+0.2
Youghiogheny river at West Newton,			—0.3	—0.1	—0.1	+0.0	—0.2

*Estimated.

NOTE.—The construction of navigation dams in the Ohio and Monongahela rivers makes it impossible to present data for those streams.

These data are liable to error due to the silting up of stream beds or other changes in cross-section, for if deposits have raised the bed the same quantity of water now passing will be recorded at a higher gage height than before the deposition was made. In other words, a gage reading of 0.5 today might mean that no more water was passing than a reading of 0.3 years ago. It is as yet not possible to state to what extent this element is present, but it is known that it affects certain records.

The Delaware river at Port Jervis, N. Y., reached a point 0.3 of a foot lower, and at Trenton, 0.2 of a foot lower than previously recorded. The Susquehanna river at Wilkes-Barre reached a stage of 0.1 of a foot below the lowest previously recorded stage, of October 7th and 8th, 1900; Little Wysox and Sugar creeks, important tributaries of the North Branch, were practically dry; the West Branch at Williamsport remained 0.4 of a foot above the low water mark of 1895, and but 0.1 of a foot above that of September, 1900, while at Harrisburg the Susquehanna river reached a point only 0.24 of a foot above the lowest recorded stage of September 28th and 29th, 1900. The Allegheny river at Freeport, 25 miles above Pittsburg, remained 0.8 of a foot above the low water record of September 26th, 1881, and September 10th, 1886. The Conemaugh river was dry between the intake of the Cambria Steel Company, near South Fork, and the mouth of Stony creek, at Johnstown. The Youghiogheny river at West Newton reached a point only 0.1 of a foot above the low water mark established September 14th, 1892; the Monongahela river was



North branch Susquehanna River, near Wilkes-Barre, low water of 1908.

also very low, while two of its important tributaries, Ten Mile creek and Dunkard creek, in Washington and Greene counties, were dry, as was Laurel creek, a large tributary of the Youghiogheny river.

Table No. 23 shows the measured flow of the large rivers of the State at or near the height of the drought. The Commission maintains permanent gaging stations at most of these points.

TABLE NO. 23.

Showing Minimum Flow of Principal Rivers of Pennsylvania at or near the Height Drought of 1908.

Stream.	Station.	Date, 1908.	Discharge in cubic feet per second.	Drainage area in square miles.	Run-off in second-feet per square mile.
Delaware river,	Port Jervis,	Sept. 20,	225.7	3,376	0.07
Delaware river,	Riegelsville,	Sept. 15.	1,409.5	6,500	0.22
Lehigh river,	South Bethlehem,	Sept. 14,	494.2	1,274	*0.39
Schuylkill river,	Port Clinton,	Sept. 22,	69.9	334	*0.21
North Branch, Susquehanna,	Danville,	Sept. 15,	980.9	11,100	0.09
Lackawanna river,	Scranton,	Sept. 23.	55.8	206	*0.27
West Branch, Susquehanna,	Renovo,	Sept. 10,	188.5	3,350	0.06
West Branch, Susquehanna,	Williamsport,	Sept. 7.	614.5	5,640	0.11
Susquehanna river,	Harrisburg,	Sept. 12,	3,216.6	24,030	0.13
Juniata river,	Newport,	Seut. 10.	651.6	3,480	0.19
Allegheny river,	Tionesta,	Sept. 28,	374.6	3,718	0.10
Allegheny river,	Tarentum,	Sept. 25,	713.0	11,050	0.07
Allegheny river,	Kittanning,	Sept. 25,	847.2	8,690	0.10
Kiskiminetas river,	Avonmore,	Sept. 25,	68.5	1,683	0.04
Clarion river,	Clarion,	Sept. 26,	119.5	922	0.13
French creek,	Carlton,	Sept.	64.0	893	0.07
Monongahela river,	Pittsburg,	Sept.	325.0	7,329	**0.04
Youghiogheny river,	Confluence,	Sept. 25,	36.1	1,000	0.04
Youghiogheny river,	West Newton,	Sept. 28,	51.0	1,582	0.03
Ohio river,	Beaver Dam, No. 6,	Sept. 24,	1,272.0	22,300	0.06
Beaver river,	Beaver Falls,	Sept. 23,	200.0	3,000	0.07
Mahoning river,	Mouth,	Sept. 23,	72.8	1,070	0.07

*Receives considerable mine water.
**Approximated by substraction of the flow of other tributaries from that of the Ohio river.

The action of streams draining limestone areas, during the drought, was particularly worthy of notice. Of these streams, all of which lie east of the crest of the mountains, perhaps the most important are Bald Eagle creek, Spruce creek, Frankstown Branch of the Juniata river, Conodogwinet creek, Codorus creek, Yellow Breeches creek, Swatara creek, Quittapahilla creek, Conestoga creek, Tulpehocken creek, Maiden creek, Lehigh river and Monocacy creek. While the major tributaries of the Susquehanna and Ohio Basins were going dry, or reaching rates of flow considerably under 0.1 of a second-foot per square mile of tributary drainage area, and even under 0.05 of a second-foot, these streams were found to be flowing from 0.2 to 1.0 second-foot per square mile, as shown by the following table.

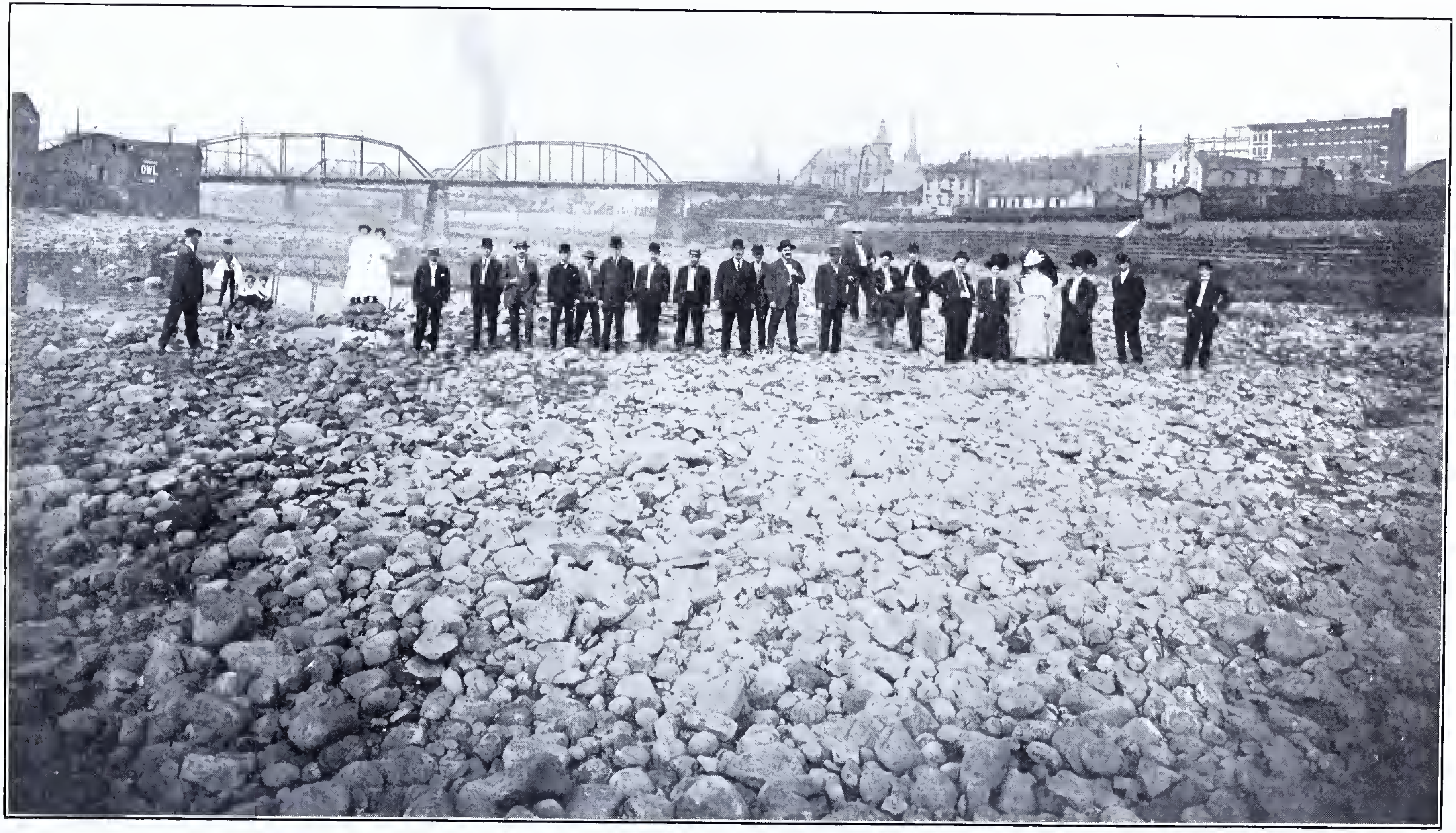
TABLE NO. 24.

Run-Off During Drought of 1908 of Streams Whose Drainage Basins Contain Considerable Areas of Limestone.

Stream.	Date, 1908.	Discharge in cubic feet per second.	Drainage area in square miles at point of measurement.	Run-off in cubic feet per second per square mile.
Bald Eagle creek,	Sept. 9,	304.7	782	0.39
Spruce creek,	Sept. 9,	63.6	93	0.68
Conodogwinet creek,	Sept. 11,	188.3	481	0.39
Yellow Breeches creek,	Sept. 11,	219.3	220	1.00
Codorus creek,	Sept. 15,	53.2	268	0.20
Swatara creek,	Sept. 12,	124.9	440	0.28
Conestoga creek,	Sept. 20,	62.2	310	0.21
Maiden creek,	Sept. 21,	80.4	217	0.37
Tulpehocken creek,	Sept. 21,	91.9	215	0.43
Lehigh river,	Sept. 14,	494.2	1,274	0.39
Monocacy creek,	Sept. 14,	28.8	52.2	0.55
Spring creek,	Sept. 12,	4.6	11.6	0.40
Kisacoquillas creek,	Sept. 10,	32.7	174	0.19

It may be that the heavy spring rains of 1908 were responsible in some measure for the well maintained flow of the limestone streams, for they draw on large volumes of subterranean storage, sometimes fed from areas which, according to surface topography, should drain elsewhere. Had the spring months shown a deficiency instead of an excess of precipitation, this storage would have been lower and have come nearer exhaustion during the dry summer. At the same time the wet spring seems to have had less effect upon the non-limestone streams as their storage is limited. In some instances it was stated by millers that certain of the limestone creeks had been known to be lower, while in most instances the other creeks were said to be as low as, or lower than, heretofore known.

The measurements indicated a noticeable difference between the flow of streams whose catchment areas are well forested and those whose basins are not, for determinations made at practically the same period of the drought, when rainfall conditions had been fairly uniform over the State, showed that streams of the former class were usually maintaining the better flow. The following table shows the rate of flow, at the height of the drought, of several important streams whose water sheds have been quite largely deforested.



Low water on Youghiougheny river at Connellsville, drought of 1908.

TABLE NO. 25.

Run-Off During Drought of 1908 of Streams Whose Drainage Basins are Largely Deforested.

Stream.	Date, 1908.	Discharge in cubic feet per second.	Drainage area in square miles at point of measurement.	Run-off in cubic feet per second per square mile.
Mahanoy creek,	Oct. 24,	32.6	133	*0.25
Shamokin creek,	Sept. 16,	21.8	165	*0.13
Catawissa creek,	Sept. 26,	6.0	131	0.05
Chillisquaque creek,	Sept. 16,	3.0	100	0.03
Wapwallopen creek,	Sept. 25,	7.2	49	0.15
Wyalusing creek,	Sept. 24,	3.7	200	0.018
Kiskiminetas river,	Sept. 25,	68.4	1,683	0.04
Black Lick creek,	Sept. 24,	6.6	403	0.016
Loyalhanna creek,	Sept. 24,	10.7	300	0.036
Turtle creek,	Sept. 24,	14.5	145	0.10
Dunbar creek,	Nov. 19,	2.3	37	0.06
Raccoon creek,	Sept. 27,	1.0	190	0.005
Connoquenessing creek,	Sept. 23,	11.0	434	0.027
Towanda creek,	Sept. 24,	8.6	220	0.04
Ten Mile creek,	Sept. 26,	0.0	350	0.06
Dunkard creek,	Sept. 26,	0.0	224	0.00

*These streams receive considerable mine drainage from the anthracite coal region.

Table No. 26 shows the rate of flow of several streams in the remaining forested sections of the State. In both tables Nos. 25 and 26 limestone streams and streams from the once glaciated region have been omitted.

TABLE NO. 26.

Run-Off During Drought of 1908 of Streams Whose Drainage Basins Contain Considerable Forest Areas.

Stream.	Date, 1908.	Discharge in cubic feet per second.	Drainage area in square miles at point of measurement.	Run-off in cubic feet per second per square mile.
Analomink creek,	Sept. 16,	9.2	29.5	0.31
Bushkill creek,	Sept. 19,	8.1	126	0.064
Little Bushkill creek,	Sept. 18,	4.0	40	0.10
Rapid run,	Sept. 17,	7.7	25	0.31
Tuscarora creek,	Sept. 10,	23.4	252	0.09
Big Loyalsock creek,	Oct. 22,	43.3	494	0.09
Pine creek,	Oct. 21,	67.3	846	0.08
Little Pine creek,	Oct. 21,	17.0	172	0.10
Lick run,	Sept. 9,	3.8	40	0.095
McElhatten run,	Sept. 9,	5.9	20	0.34
Tionesta creek,	Sept. 28,	39.7	455	0.09
Brokenstraw creek,	Sept. 28,	45.2	300	0.15
Driftwood Branch of Sinnemahoning creek,	Sept. 11,	11.2	314	0.04
McMichaels creek,	Sept. 16,	23.8	102	0.23

The streams which drain the section of the State which was once covered by the glacier, and whose sheds, therefore, contain numerous lakes, ponds and swamps, and whose surface cover consists in part of glacial drift, gravel and sand areas, maintained, as a rule, rates of discharge fairly comparable to well forested watersheds, as shown in table No. 27.

TABLE NO. 27.

Run-Off During Drought of 1908 of Streams Whose Drainage Basins Lie in the Once Glaciated Area.

Stream.	Date, 1908.	Discharge in cubic feet per second.	Drainage area in square miles at point of measurement.	Run-off in second-feet per square mile.
Brokenstraw creek,	Sept. 28,	45.2	300	0.15
Oil creek,	Sept. 27,	39.3	305	0.13
French creek,	Sept. 27,	64.0	896	0.07
Shenango river,	Sept. 23,	29.0	765	*0.04
Neshannock creek,	Sept. 23,	41.3	245	0.17
Slippery Rock creek,	Sept. 23,	45.6	440	0.10
Lackawaxen river,	Sept. 22,	33.2	300	0.11
Bushkill creek,	Sept. 19,	8.4	126	0.07

The water of this stream is in dry weather used about six times by industries, and considerable was dissipated in this way, it is presumed.

Reports do not indicate that crops were greatly damaged during the summer, due probably to the fact that the wheat, oats and hay were harvested before the height of the dry spell, while the corn and tobacco crops were well advanced. The agriculturalist suffered the most through the material lowering of the stream flow and the ground water level in September, October and November, and many farmers were forced to haul water for domestic and farm use.

Municipal water supply systems suffered in all parts of the State, the most trouble being experienced by municipalities located in regions of great industrial activity, where industries utilize available streams, limiting the supplies for municipal purposes. Thus in the anthracite coal region and on both slopes of the Alleghenies in Blair and Cambria counties, communities were seriously affected. It was necessary to warn users quite generally over the State to be frugal in the use of the water, street and lawn sprinkling was prohibited, and reports indicate that from 25 per cent. to 50 per cent. reduction in consumption was thus effected, in connection with the caution that consumers be as saving as possible in the use of water for all purposes. In fewer instances the time of using water was limited to a certain period each day, while in a few cases the supply became exhausted. In numerous instances, in order to prevent the entire failure of the supply, resourse was taken to temporary supplies, thus at Johnstown the Cambria Steel company, through a temporary connection, supplied water from its Hinkston run reservoir to the city for many weeks; at Altoona the municipal supply becoming depleted, the Allegheny Water Co., which supplies suburbs of the city, made a connection with the city mains, furnishing Altoona with over one million gallons per day for an extended period. The city of Shenandoah, with its 30,000 population, located in the anthracite coal fields in Schuylkill county, suffered perhaps as much as any community in the State, being dependent upon a number of streams for its water supply, and relying on storage to tide over periods of drought. The reservoirs of both systems supplying the city gave out during September and a limited quantitiy was furnished for a short time each day. The Girard Water Company, which supplies collieries in the vicinity of Shenandoah, furnished some water to the city during this period, but this company itself was short and so could not offer effectual aid. The borough of Cresson, population 1,500, lying in Cambria county, just west of the summit of the Allegheny mountains, was practically without water for many weeks, although there are 8 water companies incorporated for this district, two of which, belonging to the railroad supply system, had their pipe lines full continually and supplied water to shops and locomotives. Canonsburg, Washington county, was entirely without water for an extended period. At other points temporary intakes were placed in streams and at springs to reinforce the regular systems. Reports from all parts of the State indicate that general shortage existed in small towns without water supply and in rural districts, for the ground water level, late in the fall, became exceedingly low and wells dried up in great numbers. The small villages whose inhabitants were dependent upon wells seem to have suffered considerably more than towns which were served by water supply systems. The country districts generally were more affected than the urban districts.

Of the 485 water supply systems of which data as to the effect of the drought were obtained, 152 or 31 per cent. reported that a shortage existed or was prevented by temporary measures. Of the 11 systems reporting from Centre county, 5 ran short; of 19 reporting from Cambria county, 14 were short, and of the 10 reporting from Blair county, 6 were short, etc. As a result, extensions and additions to systems are being considered in many parts of the State.

A noticeable feature of the drought, and one the Commission feels should be placed before the public, was the general water shortage at towns and cities along the line of the Pennsylvania Railroad, extending from the foot of the mountains on the east at Altoona, westward and down the valley of the Conemaugh river to and beyond Johnstown. Along this line the railroad supply from its new system proved ample, its mains carrying an abundance of good water through municipalities whose local systems were inadequate and whose population and industries suffered as a consequence.

Numbers of the larger industries receive their water through systems owned or controlled by the industrial company, and obtained entirely for this purpose, being dependent upon no municipal system. Many such supplies proved inadequate during the drought, and as a result water had to be obtained by hauling in wagons or in tank cars, or through temporary pipe lines, and in numerous cases the works were shut down. Certain industries, which use water extensively in the process of manufacturing, such as pulp and paper mills, glass works, tanneries, coal washeries, coke ovens, etc., were naturally the most affected. Blast furnaces and steel works. which are heavy consumers of water, have usually been built along or near large rivers, obtaining their water therefrom, and were not in so many instances inconvenienced.

Reports received from 14 of the 40 coal district inspectors of the Department of Mines, after inquiry made for the purpose, showed considerable losses in these regions due to lack of water. Very generally mine water was used in the boilers owing to inadequacy of the usual sources of water supply, resulting in heavy expense for boiler repairs, or in the application of chemicals to prevent boiler injury. In numerous other cases temporary pipe lines were laid and pumping plants set up, to reinforce the usual sources of supply. In these 14 districts there was a loss reported during shut downs or times of restricted output, occasioned by lack of water, of 150,500 men days and a loss of money expended for boiler repairs, chemicals, new pipe lines, hauling water, pumping from temporary intakes, drilling wells, etc., directly attributed to the drought, of $42,000, while in addition many mines reported that it was not possible to state definitely the expenditures for these purposes.

Occurring during a year of marked business depression, when industrial establishments were using less water than in the year previous, the shortage in many towns and cities, and at numerous industrial plants, was less keenly felt than had business conditions been normal. In certain instances, where supplies proved adequate, it was stated that had the industrial consumption equalled that of 1907, the supply would have unquestionably fallen short. Two large steel plants on the Shenango river use, when running at full capacity, over two times as much water as was flowing in this stream during September, October and November; but these plants were either shut down or running at low capacity on account of the dull times, and obtained sufficient water.

It would seem from the above discussion that the normal precipitation in some parts of Pennsylvania is little more than sufficient for the requirements, as shown by the very decided restrictions caused by a seemingly small deficiency from the normal precipitation. A given deficiency in the precipitation is today of more importance than formerly, for the consumption for domestic and industrial purposes is increasing rapidly, while at the same time the proportion of run-off to rainfall tends in many parts of the State to decrease yearly, owing probably to changed watershed conditions; so that the available balance between consumption and supply is growing less, and in the case of some watersheds, has become exhausted. Any factor tending to reduce the yield from a given watershed affects, therefore, a proportionately greater reduction in this available balance. The deficiency in precipitation up to October 1st, 1908, seems small to have been the whole cause of the September period of minimum stream stage, and an additional cause may have been the abnormally high temperature during June, July and September, causing high evaporation, which element seems this year to have been of more than usual importance in the water supply problem, owing to the depreciated available balance. The droughts of 1895, 1900, 1904 and 1908 have taught us that with our fairly equal seasonable distribution of precipitation a seemingly small departure from the normal, either in distribution or total precipitation, has a great effect upon the run-off of streams and the available water supply. To meet these conditions it will be necessary either to restrict the use of water and control its waste, or to store it in wet seasons for use when the stream flow depreciates.

As in the case of other natural resources, the water supply should be used to its fullest, but unnecessary waste should be prevented. The State of New Jersey has attempted to prevent the waste of water by levying a tax of from one to ten dollars per million gallons for all water used for the supply of municipalities over and above a rate of 100 gallons per capita per day. Similar methods are applicable to industrial or commercial water supplies.

CHAPTER V.

FLOODS IN 1908.

In the report for 1907 data were presented relative to the principal freshets on the rivers of the State up to that date; this chapter will, therefore, be devoted to a discussion of the floods occurring during the year 1908.

The streams of the Commonwealth experienced two periods of high water during the winter of 1908, one in February, and one in March, the former being a sudden rise from an ordinary low winter stage, when the streams were quite generally frozen, and a fall almost as sudden, lasting at most points, only five days; while the latter covered a longer period, during which several crests were reached. The February freshet was general over the State, while that of March was not important in the Delaware Basin. In neither period did the larger streams, except the Kiskiminetas and Juniata rivers, reach unusual freshet heights, while during both periods the smaller streams rose in violent floods. Little damage was done in the main river valleys, but along the secondary streams considerable monetary losses resulted through the destruction of bridges, railroad embankments and the other usual accompaniments of high water, while several lives were lost by reason of the extraordinary height and suddenness of the rises in small streams. It is worthy of special note that in both February and March the Allegheny river at Freeport exceeded the stage reached during the flood of March, 1907, when the rivers at Pittsburg, 24 miles below, reached a record flood stage.

Although unusual heights were not reached at most points on the large rivers a study of these freshets sheds light upon the flood conditions in the State, for it was determined that extraordinary conditions were not required to cause unprecedented high water in many of the secondary streams, and that the retardation of the flow of certain large tributaries reduced the height of the crest in the rivers below. The February flood was checked by a fortunate fall in temperature which stopped further melting of snow and turned the rain into snow, preventing greater heights and damage. The general prevalence of the February storm over both the Allegheny and Monongahela watersheds was largely responsible for the high stage reached at Pittsburg. Favorable conditions existed for great floods both in February and March; considerable snow lay on the ground, sudden and sharp rises in temperature followed by general rains occurred, but each time climatic conditions changed opportunely and the floods were checked. The flood of February was more general than that of March, and preceding it, many of the rivers were frozen and the water low, while both freshets assumed the greatest proportions on the western rivers, and were less in evidence in the Delaware Basin.

In connection with the compilation of flood data for the report for 1907, it was found that the gage heights of many streams had been observed for long periods, but that the knowledge of their discharge was much more limited, and that such information during high stages was particularly meagre. To increase this knowledge preparations were made in the fall of 1907 to take extensive stream flow measurements during the freshets of 1908, and several new stations were established and arrangements made for co-operation of other State, City and Federal organizations in order that a large temporary force might be available, with the result that high stage discharge measurements were made at many points. The results obtained on the Delaware and Juniata rivers are particularly interesting, in that stations had been maintained at Lambertville and Newport respectively for a number of years, but no actual discharges during high stages had been measured previous to this year, the discharges during the October, 1903, flood on the Delaware river and during that of March, 1902, on the Juniata river having been based upon measurements at much lower stages. The data obtained by the Commission's measurements increased by 25 per cent. the previously estimated maximum discharge of the Delaware river at Lambertville, and reduced by considerably more than 100 per cent. that of the Juniata river at Newport. On the Kiskiminetas river, an important stream in the flood problem at Pittsburg, a very satisfactory and valuable set of readings was obtained, while new stations were established and measurements made at Clarion, on the Clarion river, and at Carlton, on French creek. High stages were also measured at Williamsport on the West Branch, Harrisburg on the Susquehanna river, Bethlehem on the Lehigh river, Huntingdon and Hawns Bridge on the two branches of the Juniata river, Confluence on the Youghiogheny river, Aspinwall on the Allegheny river, East Pittsburg on Turtle creek, Lochiel on Spring creek, Harrisburg on Paxton creek, etc. Spring creek, a small stream passing through the Harrisburg Park System and draining 11.6 square miles of rolling, highly cultivated, nearly deforested country, was measured during what was said to have been the highest water known, which measurement shows that at the crest of the flood it was discharging at the rate of 238 second-feet per square mile of watershed, being the greatest rate of run-off obtained by this Commission. The run-off over the 48.6 square miles of the South Fork of the Conemaugh river during the flood of June 1, 1889, was estimated to be 200 second-feet per square mile, while that of Burgoon run above the Altoona reservoirs, drainage area 8.5 square miles, was placed at 400, but neither of these figures was obtained by actual measurement during the freshet. No measurements were made at Kittanning as discharges were measured up to high stages during the flood of 1905, while none were made on the North Branch of the Susquehanna river as that stream did not rise above heights previously measured.

During the flood periods of 1908 a total of 58 discharge measurements were made at the gaging stations of the Commission, distributed as shown in Table No. 28, which also shows the date and discharge, together with the previous maximum gage height recorded.

TABLE NO. 28.

Discharge Measurements Made in Freshet Period of 1908.

Station.	Stream.	Date.	Gage height.	Discharge.	Previous maximum gage height at station.
Lambertville,	Delaware river,	Feb. 16	13.6	112,000	24.5 (1903).
Lambertville,	Delaware river,	Feb. 16	13.8	114,000	No record.
Riegelsville,	Delaware river,	Feb. 17	17.1	80,600	No record.
Riegelsville,	Delaware river,	Feb. 17	16.05	75,300	No record.
Riegelsville,	Delaware river,	Feb. 18	15.2	66,600	No record.
Riegelsville,	Delaware river,	Feb. 18	11.15	38.900	No record.
Riegelsville,	Delaware river,	Feb. 18	10.87	37,300	No record.
Riegelsville,	Delaware river,	Feb. 19	9.16	28.200	No record.
South Bethlehem,	Lehigh river,	Feb. 17	---------	---------	No record.
South Bethlehem,	Monocacy creek,	Feb. 17	---------	---------	No record.
Harrisburg,	Susquehanna river,	Mar. 17	14.63	263.869	25.6 (1894.)
Williamsport,	West Branch,	Feb. 16	16.32	*99,120	21.10 (Mar., 1902.)
Williamsport,	West Branch,	Mar. 20	16.84	94,057	21.10 (Mar., 1902.)
Newport,	Juniata river,	Feb. 16	13.70	*39,945	25.30 (Mar., 1902.)
Newport,	Juniata river,	Feb. 17	10.80	27,351	25.30 (Mar., 1902.)
Newport,	Juniata river,	Feb. 17	10.20	*24,767	25.30 (Mar., 1902.)
Newport,	Juniata river,	Mar. 9	12.58	35,331	25.30 (Mar., 1902.)
Newport,	Juniata river,	Mar. 19	19.15	73.000	25.30 (Mar., 1902.)
Huntingdon,	Frankstown branch,	Feb. 18	4.99	2,197	14.00 (Dec., 1901.)
Huntingdon,	Frankstown branch,	Mar. 9	7.65	7,899	14.00 (Dec., 1901.)
Huntingdon,	Frankstown branch,	Mar. 10	6.85	6,530	14.00 (Dec., 1901.)
Huntingdon,	Frankstown branch,	Mar. 10	6.48	5,866	14.00 (Dec., 1901.)
Huntingdon,	Frankstown branch,	Mar. 19	12.70	27,854	14.00 (Dec., 1901.)
Huntingdon,	Frankstown branch,	Mar. 20	9.50	12,985	14.00 (Dec., 1901.)
Huntingdon,	Frankstown branch,	Mar. 20	8.70	10,378	14.00 (Dec., 1901.)
Hawns Bridge,	Raystown branch,	Feb. 18	6.48	3,798	No record.
Hawns Bridge,	Raystown branch,	Mar. 10	9.35	10,045	No record.
Hawns Bridge,	Raystown branch,	Mar. 20	12.80	19,830	No record.
Avonmore,	Kiskiminetas,	Mar. 3	13.70	19,205	30.25 (March, 1908.)
Avonmore,	Kiskiminetas,	Mar. 3	12.87	16.959	30.25 (March, 1903.)
Avonmore,	Kiskiminetas,	Mar. 3	12.41	15,685	20.25 (March, 1908.)
Avonmore,	Kiskiminetas,	Mar. 4	10.80	11,542	30.25 (March, 1908.)
Avonmore,	Kiskiminetas,	Mar. 4	10.38	10,488	30.25 (March, 1903.)
Avonmore,	Kiskiminetas,	Mar. 4	10.14	9,884	30.80 (March, 1908.)
Avonmore,	Kiskiminetas,	Mar. 4	9.85	9,634	30.25 (March, 1908.)
Avonmore,	Kiskiminetas,	Mar. 5	9.91	9,658	30.25 (March, 1908.)
Avonmore,	Kiskiminetas,	Mar. 5	9.85	9,398	10.25 (1905.)
Confluence,	Youghiogheny,	Feb. 16	9.10	8,850	30.25 (March, 1908.)
Confluence,	Laurel Hill creek,	Feb. 16	6.73	1,940	7.65 (1905.)
Confluence,	Laurel Hill creek,	Feb. 17	3.74	960	7.65 (1905.)
Confluence,	Casselman river,	Feb. 16	10.20	8.900	10.4 (March, 1905.)
Confluence,	Casselman river,	Feb. 16	6.74	5,560	10.4 (March, 1905.)
Confluence,	Casselman river,	Feb. 17	7.73	3,320	10.4 (March, 1905.)
East Pittsburg,	Turtle creek,	Feb. 15	5.52	2,930	10.7
Clarion,	Clarion river,	Mar. 20	6.85	14,277	
Carlton,	French creek,	Mar. 19	8.35	7,170	No record.

*Float measurement.

The following data concerning the two freshet periods of the winter of 1908 were obtained from the above measurements, and from the records of the observers of the Commission and of the United States Weather Bureau.

FRESHET OF FEBRUARY.

The first general high water period in 1908 extended from February 14th to 18th, for during December and January the freshets in some of the secondary streams, caused by local rains and thaws, affected the rivers only slightly. During January and the early part of February there were exclusively snows, averaging probably 10 inches in depth over much of the State; and the rivers were nearly all frozen. On February 12th came a sharp rise in temperature in the west, followed in the east by a similar rise on the 13th, and accompanied generally by steady rains lasting from the 13th to the 15th. Ordinarily such a rain as this, uniform in intensity and averaging 1.15 inches over the State, would hardly have caused appreciable rises in the larger streams; but the frozen condition of the ground, and the large quantity of melting snow, caused a sudden and simultaneous rise. After the discharge of this rain and melted snow there remained little water to come out of the smaller creek valleys, the rain having stopped abruptly on the 15th or morning of the 16th, and the weather having turned cold, preventing further melting of the snow. Moreover, the water coming into the large rivers from their lower tributaries was carried away before the maximum arrived from above.

The rivers at Pittsburg came closer to previous record height than any other large streams, probably because high water from the lower Allegheny and Monongahela rivers arrived there almost at the same time and similar rain, snow and temperature conditions existed over both their basins. Had not this been the case, and had the Allegheny valley alone been subjected to this sudden rise in temperature and precipitation, the Ohio below Pittsburg would have been called upon to carry off only the flood flow of one stream. The Allegheny river at Freeport was at higher stage in February, 1908, than at the time of the record flood at Pittsburg of March 15th, 1907, but fortunately the Monongahela river was much lower in 1908 than in 1907.

On the Susquehanna river the flood water from Penns creek, Shermans creek, Juniata river, Conestoga, Swatara, Conodogwinet and Codorus creeks passed out before the crest from the West Branch arrived, while that from the North Branch arrived many hours behind the West Banch maximum. On the Delaware river the flood water from the Lehigh river was out before that from the two branches in New York and from the Lackawaxen river got down to Easton. Had there been, however, extensive rains and continued high temperature after the 15th, the water coming down from above would have met more water from the lower tributaries and a greater flood would have occurred.

TABLE NO. 29.

Average Temperature and Precipitation by Drainage Basins—February 11 to 15, 1908.

Basin.	Average temperature, Feb. 11.	Average temperature, Feb. 15.	Average rise.	Average total precipitation in inches.	Average snow on ground.
Delaware basin,	25.1 °	48.3 °	23.2 °	1.13	----------
Susquehanna basin,	21.6 °	43.8 °	22.2 °	1.03	----------
Ohio basin,	34.3 °	42.2 °	7.9 °	1.17	----------
Potomac basin,	30.75°	38.75°	8.0 °	1.31	----------
Erie basin,	33.5 °	42.0 °	8.5 °	1.12	----------
Average of State,	29.0 °	43.0 °	14.0 °	1.15	8 to 12 in.

Table No. 29 shows the average temperature before and after the rain, the average rise in temperature, the average total rainfall and the average depth of snow melting in each drainage basin. The maximum rainfall was at Parkers Landing, Armstrong county, on the Allegheny river, where there was a precipitation of 2.34 inches, 0.6 of which fell on the 16th and 17th in the form of snow. The prevailing temperatures preceding the flood were higher in the west than in the east, and the precipitation continued over the 16th, and in some cases to the 17th, in the form of snow in the west, while at nearly every station in the Susquehanna and Delaware Basins it stopped abruptly with the fall in temperature on the 15th. At practically every station the greatest precipitation was on the 15th, showing the exceeding uniformity of the conditions over the State. This table shows that the greatest rainfall was over the Potomac, and the least over the Susquehanna Basin. The greatest rise in temperature was over the Delaware Basin, that over the Susquehanna was one degree less, while over the Ohio it was the least. Furthermore, this table indicates that the average precipitation of all the stations was only 1.15 inches for three or four days of rain, while the melted snow may have been equivalent to 1.00 to 1.25 inches of rain; so that the run-off was seemingly of nearly equal parts rain and melted snow.

Table No. 30 shows the daily stages of the streams at points at which such records are kept, arranged by drainage basins. The height given is usually that at about 8 a.m., while at some points it is the average of A. M. and P. M. readings. Where carefully observed, the hour of the maximum height reached is shown.

TABLE NO. 30.

River Stages During February Freshet.

OHIO BASIN.

Station.	Date.									Flood stage.	Previous maximum.
	12	13	14	15	16	17	18	19	20		
Allegheny.											
Warren,	1.2	1.6	4.0	12.2 6 P. M.	11.6	9.7	8.3	7.0	6.0	14.0	17.4 1865
Franklin,	4.5	4.0	7.9	10.6	16.4 10 A. M.	13.1	10.6	8.7	7.2	------	------
Clarion,	2.9	3.0	6.0	12.0 5 P. M.	10.0	6.6	5.8	5.3	4.8	10.0	15.2 1904
Parker,	4.8	4.7	6.3	8.5	17.5	11.6	7.8	7.0	6.5	20.0	28.0 1865
Kittanning,	--------	--------	------	18.9	24.8 9 P. M.	18.7	15.4	12.8	------	------	------
Freeport,	4.3	4.8	7.0	20.3	28.4	22.0	17.6	13.8	12.0	20.0	32.7 1891
Johnstown,	2.0	2.6	5.0	13.4 6 P. M.	8.0	5.1	3.9	3.8	3.6	7.0	21.0 1889
Blacklick,	3.0	3.9	5.3	11.6 5 P.M.	7.5	5.5	4.5	4.3	4.1	------	------
Saltsburg,	Froz.	9.5	9.9	11.0 6 P. M.	9.5	5.0	3.5	2.8	2.2	6.0	22.1 1859
Avonmore,	--------	--------	------	22.6 5 P.M.	21.4	11.8	8.8	7.8	------	------	------
Aspinwall,	18.6	18.8	23.3	35.9	40.0 Noon.	34.4	29.9	27.2	25.6	------	42.6 1907
Herrs Island,	3.9	5.6	8.5	19.9	32.6 1 P. M.	27.5	19.6	14.8	12.7	22.0	36.4 1907
Monongahela.											
Fairmount,	15.8	17.0	18.5	19.8	----------	19.8	17.0	16.6	17.7	25.0	37.0 1888
Rowelsburg,	Froz.	--------	------	8.0	----------	5.5	4.5	4.0	3.8	14.0	22.0 1888
Greensboro,	8.5	10.4	13.6	15.8	22.0 1 A. M.	14.7	11.4	10.0	10.4	18.0	39.0 1888
Lock No. 4,	10.5	11.5	16.1	20.3	28.5	21.5	15.8	13.7	12.5	28.0	42.0 1888
East Pittsburg,	2.3	3.0	3.6	7.5 Noon.	Back W. 10.7 1 P. M.	5.3	2.4	2.0	1.9	------	------
Confluence,	Froz.	Froz.	3.8	-------- 4 P. M.	8.2	5.0	3.5	3.0	2.5	10.0	18.0 1888
West Newton,	Froz.	4.5	8.0	18.0 11P.M.	16.5	7.8	5.8	4.1	4.0	23.0	26.3 1907
Pittsburg,	3.4	5.0	7.7	17.8	30.7 1 P. M.	26.0	17.5	13.1	11.0	22.0	35.8 1907
Ohio.											
Davis Island,	5.6	7.5	10.3	16.6	29.1 1 P. M.	25.8	17.3	13.5	12.1	25.0	33.7 1907
Dam No. 2,	4.7	6.7	9.1	15.8	29.4	27.4	18.1	13.0	11.0	------	------
Ellwood Junc.,	Froz.	Froz.	4.3	9.6	10.6	9.0	8.1	4.6	3.4	14.0	22.8 1904
Beaver Dam,	7.0	8.7	13.4	23.5	41.3 8 P. M.	39.2	29.6	20.8	17.1	27.0	43.0 1902
Wheeling,	6.9	7.9	10.8	19.8	34.0	42.8 10P.M.	39.2	29.3	20.9	36.0	53.1 1884

SUSQUEHANNA BASIN.

Station.	Date.								Flood stage.	Previous maximum.
	12	13	14	15	16	17	18	19		
W. Branch.										
Clearfield,	Froz.	Froz.	Froz.	8.5 P. M.	7.3	4.2	3.0	2.5	8.0	17.0 1889
Renovo,	Froz.	Froz.	Froz.	3.6	13.4 A. M.	9.4	6.8	5.5	35.0	27.3 1889
Williamsport,	2.2	2.1	2.1	2.6	17.0 A. M.	13.2	9.3	7.4	20.0	33.5 1889
N. Branch.										
Binghamton,	------	------	------	4.0	14.0 10A.M.	------	9.1	------	16.0	19.7 1902
Towanda,	------	------	------	------	15.8 4 P. M.	12.8	9.8	6.3	16.0	29.0 1869
Wilkes-Barre,	6.0	5.9	5.9	7.1	19.6	21.8 8 A. M.	17.7	14.0	17.0	33.1 1865
Danville,	------	------	------	10.6	15.9	17.2 5 P. M.	14.4	11.7	------	------
Susquehanna.										
Selins Grove,	------	------	------	3.5	13.0 P. M.	12.2	10.0	7.6	17.0	20.0 1889
Harrisburg,	Froz.	Froz.	Froz.	3.7	15.2 10P.M.	14.4	12.3	9.6	17.0	26.1 1889
Juniata.										
Huntingdon,	------	------	------	10.2 P. M.	8.7	5.5	5.2	4.8	24.0	25.0 1889
Hahns Bridge,	------	------	------	6.8	12.1 8 A. M.	8.2	6.6	5.0	------	------
Newport,	Froz.	Froz.	5.3	8.5	14.2 8 A. M.	11.7	7.7	6.4	------	------

DELAWARE BASIN.

Station.	Date.								Flood stage.	Previous maximum.
	12	13	14	15	16	17	18	19		
Delaware.										
Port Jervis,	1.0	1.8	3.1	3.7	11.8	6.8	4.6	3.7	14.0	23.5 1904
Phillipsburg,	Froz.	2.2	2.2	4.8	14.2	12.9	8.5	6.8	26.0	------
Trenton,	3.5	3.5	3.5	7.0	10.0	10.0	6.2	------	18.0	------
Lambertville,	------	------	------	------	------	------	------	------	------	------
Riegelsville,	------	------	------	------	------	------	------	------	------	------
Lehigh.										
Mauch Chunk,	Froz.	Froz.	Froz.	Froz.	8.5	6.4	5.4	------	15.0	------
Schuylkill.										
Pottsville,	------	------	------	------	------	------	------	------	------	------
Reading,	0.6	0.6	0.8	4.5	6.3	2.9	1.9	------	12.0	22.0 1850

Note—The maximum stage reached was not recorded at the stations in the Delaware basin.

It is seen that the streams were low on the 12th and 13th, with only a slight rise on the latter day, but by the morning of the 14th the smaller rivers had risen considerably; more in the west than in the Susquehanna and Delaware Basins. On the morning of the 15th the smaller streams were approaching their maximum stages, which as a rule were reached that night, while it was not until the 16th that the larger streams reached their crests. At no station was the crest above the previously recorded maximum, and in few instances was it dangerously approached, the three rivers at Pittsburg rising nearest to previous maximum, reached 30.7 feet at 1 P. M. on the 16th, 5.1 feet below the record flood of March 15, 1907. This city had been warned to prepare for a stage of 31 feet and the losses are said to have been considerably lessened by this timely forecast. The lower streets bordering the rivers in Pittsburg and Allegheny were submerged and the cellars flooded throughout much of the business section of both cities. Above their junction, neither the Allegheny nor Monongahela rivers were at damaging heights. In the Susquehanna and Delaware Basins the large rivers did not exceed the danger line, and the losses along the main valleys were small.

The highest water from the upper Allegheny river did not reach Pittsburg until after the maximum stage had passed that point, the Monongahela river flood meeting the high water from the lower Allegheny river causing probably the maximum stage. In like manner the high water in the lower Susquehanna river was mostly from the West Branch, as the crest did not reach Danville on the North Branch, 12 miles above the junction of the North and West Branches, until 5 P. M. on the 17th, 17 hours after the crest from the West Branch and the main stream had reached Harrisburg, notwithstanding the fact that a precipitation of 1.2 inches was recorded at Wilkes-Barre on the 14th, while the rain came on the 15th, all over the West Branch.

The Lehigh river flooded a portion of the plant of the Bethlehem Steel Company at South Bethlehem, and caused the shutting down of industries in the lower portion of Allentown. Monocacy creek, a tributary of the Lehigh river at Bethlehem, rose high and flooded houses in its valley; Jordan creek and Little Lehigh river flooded the tracks of the Lehigh Valley, Jersey Central and Philadelphia and Reading railroads.

A portion of the town of North Pine Grove was submerged by the formation of an ice gorge in Swatara creek, formed on February 15th; Quittapahilla creek and the Hazle Dyke, at Lebanon, rose on the afternoon of the 15th to nearly the maximum of 1902, forming a large lake on the south and west borders of the city, submerging street railway tracks and houses and industrial plants. Spring creek, at Harrisburg, washed out a stone arch bridge, stopped traffic on two street car lines, and caused about $500.00 worth of damage to city streets and Park roads. Paxton creek, at Harrisburg, was at its highest on the evening of the 15th, when it flooded meadows and houses in its valley. Small streams tributary to the North Branch at Berwick and West Berwick inundated several houses and the American Car and Foundry Works, while trolley traffic between Berwick and Bloomsburg was cut off and the lower end of the Bloomsburg Division of the Delaware, Lackawanna and Western Railroad was submerged. Catawissa creek, joining the North Branch from the south at Catawissa, rose rapidly at Mainville, damaging the county bridge.

Conococheague creek had one of the worst floods in years, submerging the electric light plant at Chambersburg, and carrying away several bridges. Stony creek and the Conemaugh river flooded cellars and blocked street car traffic at Johnstown. The Shenango river rose at Sharon to within 2 feet of its maximum flood height, submerging residence and business districts.

Table No. 31 shows the maximum stage and discharge reached at gaging stations of the Commission during this period, together with the previous maximum discharge recorded.

TABLE NO. 31.

Estimated Maximum, Greatest Height and Discharge, February Freshet.

Station.	Date.	Gage Height. Feet.	Discharge. Second-feet.	Previous maximum discharge. Second feet.	Remarks.
Harrisburg,	Feb. 17,	15.2	269,900	700,000	
Williamsport,	Feb. 17,	17.0	108,000	164,100	
Wilkes-Barre,	Feb. 17,	21.8	115,000	217,700	
Danville,	Feb. 17,	17.2	124,400	304,800	
Newport,	Feb. 16,	14.2	43,600	113,600	
Huntingdon,	Feb. 17,	10.2	----------	----------	New Station.
Hawns Bridge,	Feb. 16,	12.1	17,700	----------	New Station.
Avonmore,	Feb. 15,	22.6	47,000	----------	New Station.
Aspinwall,	Feb. 15,	40.0	280,000	----------	New Station.
Confluence,	Feb. 15,	15.0	17,900	----------	New Station.
Kittanning,	Feb. 15,	24.8	183,000	232,000	
Turtle Creek,	Feb. 15,	7.5	3,300	9,375	
Blacklick,	Feb. 15,	11.6	12,100	18,000	

FRESHETS OF MARCH.

The rivers rose in March to several maximums, though none but the Kiskiminetas and Juniata were unusually high and only a few reached the heights of the February freshet. No such simultaneous and general rise took place as in February, but two or more crests were reached. The freshet of February was followed by a period of cold, considerable snow fell and the streams quite generally dropped to points approximately as low as had preceded this rise, Snow accumulated until the depth approximated that on the ground at the time of the February thaw, and rain falling upon and melting it caused the several rises, as in the previous month. The streams of the Delaware Basin were little affected during March, while the streams of the Susquehanna Basin were the most affected, in some cases reaching higher stages than in February. Table No. 32 shows the stages at the various observation stations in the Ohio and Susquehanna Basins during this period, those of the Delaware Basin not being presented owing to the unimportance of the freshets in this basin. The maximum stage reached is shown by asterisks.

TABLE NO 32.

OHIO BASIN.

March. Date.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Flood stage.	Previous maximum.
Station. Allegheny.																							
Warren,	1.6	3.0	*5.0	4.5	4.5	4.2	5.2	5.0	4.7	4.2	3.8	4.6	6.0	8.0	8.5	*10.0	9.2	8.3	8.1	7.2	6.3	14.0	17.4 1865
Franklin,	2.4	4.6	*8.5	7.2	6.9	6.6	8.5	8.4	7.7	6.6	5.6	5.7	7.6	8.9	9.6	*11.1	10.6	9.1	10.9	9.6	7.8	------	------
Clarion,	4.5	--------	*8.5	6.2	5.1	4.6	6.0	5.6	5.0	4.7	4.3	3.7	5.5	8.8	8.5	------	------	8.6	11.5 noon.	9.0	------	10.0	15.2 1904
Parker,	2.3	5.5	*10.0	8.2	7.3	7.1	9.4	8.5	8.0	6.9	5.9	5.9	7.1	8.7	10.5	*11.8	11.0	10.1	12.8 4 P.M.	11.4	9.4	20.0	28.0 1865
Kittanning,	------	--------	--------	------	------	------	--------	--------	------	------	9.8	10.4	12.9	14.5	15.4	*16.8	16.5	16.9	19.8 6 P.M.	17.6	16.9	------	------
Freeport,	5.6	10.0	*17.7	15.0	12.7	13.0	19.8	*20.9	15.2	13.3	12.0	11.1	11.9	14.2	16.5	*18.0	17.8	15.2	*28.7 8 P.M.	23.0	15.3	20.0	32.7 1891
Johnstown,	2.5	4.5	*6.2	4.8	5.0	6.6	9.8	6.8	8.0	5.5	5.0	6.0	6.5	7.5	6.5	7.0	5.5	4.8	*16.7	8.0	5.5	7.0	21.0 1889
Blacklick,	3.6	6.9	6.2	5.3	5.0	8.4	9.1	6.5	6.4	5.5	5.0	5.2	5.4	6.1	5.8	6.1	5.2	6.2	*11.3 8 A.M.	6.6	5.3	------	------
Saltsburg,	1.0	4.5	6.2	4.5	4.2	4.5	8.8	7.0	6.2	5.0	4.2	4.3	4.8	5.2	5.2	6.0	4.7	3.5	*18.0 2 P.M.	9.2	5.5	6.0	22.1 1859
Avonmore,	------	--------	--------	------	------	------	--------	--------	------	------	10.0	10.3	10.6	10.9	11.0	13.2	9.9	10.7	*30.8 3 P.M.	18.0	12.0	------	------
Aspinwall,	23.5	29.8	28.3	28.1	26.3	26.7	*31.1	28.2	26.2	27.2	25.6	24.7	25.4	26.7	28.6	30.2	30.0	28.0	*37.8 12P.M.	36.9	29.3	------	42.6 1907
Herrs Island,	5.0	11.6	21.8 10A.M.	18.4	14.1	13.5	*22.4 2 A.M.	21.7	17.7	18.7	14.7	12.4	12.3	14.0	16.4	17.1	17.8	15.5	22.6	*29.7	19.1	22.0	36.4
Monongahela																							
Fairmount,	------	*22.3	20.7	18.0	17.0	16.9	18.6	--------	*22.7	20.5	18.4	17.2	16.6	10.2	------	15.9	15.9	15.7	18.2	*19.5	17.9	25.0	37.0 1888
Rowelsburg,	------	7.0	6.4	5.2	4.6	4.8	7.8	--------	7.0	6.8	5.6	4.2	3.5	3.2	------	2.8	2.7	2.6	5.8	6.3	4.8	14.0	22.0
Greensboro,	8.7	*18.5 6 A.M.	16.8	13.0	11.0	10.6	14.0	14.0	17.1	15.6	12.8	10.9	10.0	9.2	9.2	9.2	9.3	9.0	12.8	*15.5 2 A.M.	12.3	18.0	39.0 1888 1888 1907

*Indicates maximum stage.

Lock No. 4,	10.2	16.1	*24.0	18.5	14.8	13.2	20.0	19.5	19.3	22.8	17.9	14.7	12.9	11.9	11.7	11.2	11.0	10.9	17.5	23.0	17.0	28.0	42.0 1888
E. Pittsburg,	2.4 *7.5	4.8	4.2	2.3	2.1	5.0 3.8	3.5	3.2	3.3	3.2	2.4	2.2	2.1	2.3	2.9	2.4	2.3	2.4 5.8	*7.4 5.9	5.0	2.5	------	------
Confluence,	1.6	3.6	6.4	4.6	4.2	5.2	8.8	7.0	*8.9	6.0	4.5	4.3	4.4	4.8	4.3	4.4	3.6	2.7	*9.0	6.5	4.3	10.0	18.0 1888
W. Newton,	2.0	5.2	*10.4	7.5	5.9	6.1	13.5 7 A. M.	11.5	10.6	9.7	6.9	5.8	5.4	5.7	5.9	5.9	5.5	4.4	*15.1	12.6	7.1	23.0	26.3 1907
Pittsburg, -	4.2	10.6	*20.5 10 A.M.	17.5	12.8	11.7	*20.9 1 A.M.	20.5	16.2	18.2	14.0	11.7	11.2	12.0	14.1	14.8	15.5	13.0	20.4	*27.3	17.8	22.0	35.8 1907
Ohio.																							
Davis Island,	6.8	11.9	20.0 1 P.M.	17.2	13.4	12.8	*20.1 2 A.M.	19.6	16.3	17.7	14.2	12.4	12.1	12.8	14.4	14.8	15.4	13.6	19.6	*26.2	17.8	25.0	33.7 1907
Dam No. 2, -	5.9	10.4 4 P.M.	20.2	17.8	12.9	11.8	17.8	20.5	16.6	18.1	14.0	11.4	11.0	11.8	13.9	14.4	15.3	13.1	19.5	*27.3	18.7	------	------
Ellwood Jc.,	2.3	*13.2	11.0	8.6	6.6	7.6	--------	10.7	0.5	0.2	------	3.8	2.8	2.9	2.8	3.1	3.0	2.9	8.0	9.0	6.2	14.0	22.8 1904
Beaver Dam,	8.7	19.0	30.1	28.5	*32.0	19.1	27.3	31.0 3 A.M.	26.5	26.7	22.3	18.5	17.4	18.2	20.5	21.2	22.5	20.0	26.6	*38.1	30.0	27.0	43.0 1902
Wheeling, --	9.2	14.9	26.1	*32.0	28.0	21.9	24.3	*31.6	31.6	28.7	27.2	------	18.5	17.7	19.2	21.2	22.7	22.3	26.7	*39.6 8 P. M.	38.4	36.0	53.1 1884

*Indicates maximum stage.

SUSQUEHANNA BASIN.

Date—	11	12	13	14	15	16	17	18	19	20	21	22	23	Flood stage.	Previous maximum.
Station.															
W. Branch.															
Clearfield,	3.0	3.8	4.5	5.7	5.0	6.0	4.5	3.5	*7.8	6.7	4.0	3.0	2.8	8.0	17.0 1889
Renovo,	5.3	6.2	7.8	10.3	10.5	13.3	10.5	8.2	10.6	*13.4	9.1	7.0	6.5	16.0	27.3 1889
Williamsport,	6.4	6.7	8.5	11.2	13.4	15.8	15.0	11.4	*17.6	17.4	13.1	9.9	8.5	20.0	33.5 1889
N. Branch.															
Binghampton,	2.9	3.2	4.8	9.6	11.5	*17.5	10.4	7.4	6.6	6.0	5.0	4.7	4.9	16.0	19.7 1902
Towanda,	2.7	3.5	6.6	11.8	13.0	*13.8	11.8	8.3	7.5	7.8	6.3	5.0	4.8	16.0	29.0 1869
Wilkes-Barre,	6.3	7.0	10.4	17.3	20.6	*22.0	20.9	16.9	14.9	16.1	13.0	11.0	10.3	17.0	33.1 1865
Danville,	5.7	6.6	7.4	12.4	16.1	*16.9	15.5	14.7	13.5	14.1	12.2	10.7	9.8	--------	--------
Susquehanna.															
Selins Grove,	4.3	4.8	5.4	8.1	11.3	12.4	9.5	*13.1	10.5	12.4	10.5	7.9	6.3	17.0	20.0 1889
Harrisburg,	6.9	7.1	7.7	9.4	12.7	*15.5	14.8	13.0	12.7	*16.0	14.1	10.4	8.6	17.0	26.1 1889
Juniata.															
Huntingdon,	6.3	7.9	8.3	9.2	8.4	9.2	7.5	6.7	*13.6	9.7	7.3	6.5	6.1	24.0	25.0 1889
Newport,	9.9	10.7	11.7	12.8	12.2	12.3	11.2	9.6	19.3	*20.7	13.9	9.7	8.3	--------	--------
Hawns Bridge,	8.3	8.8	9.3	9.3	9.3	8.8	8.0	8.0	*14.9	12.6	8.8	7.3	6.7	--------	--------

*Indicates maximum stage.

TABLE NO. 33.

Estimated Maximum Discharge, March, 1908, and Previous Maximums.

Station.	Date.	Gage height in feet.	Discharge. Second-feet.	Previous maximum discharge. Second-feet.	Remarks.
Harrisburg,	March 20,	15.9	288,800	700,000	
Williamsport,	March 20,	17.4	100,800	164,100	
Wilkes-Barre,	March 16,	22.0	116,000	217,700	
Danville,	March 16,	16.9	120,000	304,800	
Newport,	March 20,	20.75	84,000	113,600	
Huntingdon,	March 19,	13.8	38,600		New Station.
Hawns Bridge,	March 19,	14.9	26,100		New Station.
Avonmore,	March 19,	30.8	75,000		New Station.
Aspinwall,	March 19,	37.83	245,000		New Station.
Confluence,	March 19,	11.0	11,900		
Kittanning,	March 19,	19.8	141,500	232,000	
Turtle Creek,	March 19,	7.4	3,500	9,375	
Blacklick,	March 19,	11.1	13.100	18,000	

The most general March rise extended from the 18th to 21st, others occurring on some streams on the 3rd, 7th, and 16th. The flood beginning on the 18th much resembled that of February in its causes and effects. Preceding this freshet, on the 18th and 19th, the rain was generally heavier than in February and was concentrated in the two days, the average precipitation for the Delaware Basin being 1.36 inches, for the Susquehanna 1.63 inches, and for the Ohio 1.83 inches. The greatest precipitation was at Johnstown, 3.55 inches, but the rise in temperature was not marked, the freshet having been preceded for several days by temperatures rising quite generally above freezing.

TABLE NO 34.

Average Precipitation Preceding Freshet of March 18th to 20th, by Drainage Basins.

Basin.	March 18.	March 19.	Total.
Delaware Basin,	0.80	0.56	1.36
Susquehanna Basin,	0.80	0.83	1.63
Ohio Basin,	0.81	1.03	1.83
Potomac Basin,	0.81	0.80	1.61
Erie Basin,	0.06	0.03	0.09

In the west the Allegheny river at Aspinwall reached a maximum stage of 37.8 at midnight of the 19th, against a stage of 40 feet on February 16th, at Kittanning the river rose to only 19.8 on March

19th, against 24.8 on February 16th, but the Kiskiminetas river at Avonmore rose to 30.8 on March 19th against 22.6 on February 15th. The height reached by the Kiskiminetas river was due to the intense precipitation which fell upon the upper portion of its watershed. The two streams most affected during this freshet were the Kiskiminetas and Juniata rivers, whose headwaters abut one another on opposite sides of the Alleghenies. The Monongahela river at Lock No. 4 was 5.5 feet lower than in February, while the Youghiogheny river at West Newton was 5.4 feet lower. The Monongahela river at Pittsburg was 27.3 on March 20th, agaisnt 30.7 on February 16th, and the Ohio river at Wheeling, 39.6 against 42.8 in February.

In the Susquehanna Basin, the West Branch at Williamsport was 17.6 on March 19th, against 17.0 on February 16th, and the North Branch at Danville 16.9 on March 16th, against 17.2 on February 17th; thus the West Branch was a little lower and the North Branch a little higher in the February freshet. The Juniata river reached 20.7 feet on March 20th, against 14.2 during February, and the Susquehanna river at Harrisburg rose to 16.0 on the 20th, against 15.2 on February 16th. Thus it appears that the March high water generally exceeded that of February in the Susquehanna Basin, and was several feet lower than the February flood on the western streams. The North Branch flood this time preceded that from the West Branch, while it followed the flood in the West Branch in February, and in neither case is this phenomenon explained by the distribution of the precipitation. The North Branch crest, coming down and meeting a small rise in the West Branch, caused a stage of 15.3 at Harrisburg on March 16th, while the West Branch flood coming on the 19th, caused the Susquehanna river at Harrisburg to rise to 16 feet on the 20th. Had the maximums on the two branches met at their junction, a higher stage at Harrisburg would have resulted, particularly if this crest had met the high water from the Juniata.

The freshets of March 3rd and 7th followed small rains and were of minor importance, at no point reaching stages equal to those of February 16th and March 18th to 21st.

ADDITIONAL FLOOD DATA AT PITTSBURG.

The city of Pittsburg has recognized the gravity of the flood problem at that point, and a flood commission consisting of members of the Chamber of Commerce was appointed to study the problem and suggest methods of relief. Members of the Committee visited various European countries during the year, looking into foreign methods of flood amelioration and protection, while studies are in progress of the causes, effects and possible methods of relief of the freshet conditions at Pittsburg. In this investigation the question has arisen as to whether it is advisable to attempt measures to reduce the height of the floods, or to try to protect the city from floods even higher than that of March, 1907. The former course would benefit other communities than Pittsburg, and should involve co-operation among the many communities benefitted, while the latter would afford purely local relief.

Through the kindness of Henry Pennywitt, Local Forecaster, United States Weather Bureau, Pittsburg, we are able to present herewith a list of the flood heights on the Ohio river at Pittsburg, compiled from "Historical Gleanings," by Judge John E. Parke, records of the U. S. Engineer Corps, U. S. Signal Corps, and U. S. Weather Bureau. This list supplements that published in the report of the Commission for 1907.

TABLE NO. 35.

Record of Floods in the Ohio River at Pittsburg and Wheeling.

Flood Stage at Pittsburg, 22 feet, and at Wheeling, 36 feet.

Year.	Day of Month.	Stage at Pittsburg.	Stage at Wheeling.
1806	April 10,	33 9	--------
1810	Nov. 9,	32 0	48 6
1813	January,	29 0	--------
1816	February,	33 0	--------
1832	February 10,	35 0	48 1
1840	February 1,	26 8	--------
1846	March 15,	25 0	--------
1847	February 2,	26 9	--------
1847	December 12,	24 0	--------
1848	December 22,	23 0	--------
1851	Sept. 20,	30 9	--------
1852	April 6,	25 0	--------
1852	April 19,	31 9	48 0
1858	May 27,	26 0	--------
1859	April 28,	22 0	--------
1860	April 12,	29 7	43 0
1860	November 4,	22 0	--------
1861	Sept. 29,	31 0	44 2
1862	January 21,	30 0	--------
1862	April 22,	27 9	37 0
1865	March 4,	24 5	--------
1865	March 18,	31 4	41 0
1867	February 15,	22 0	--------
1867	March 13,	23 5	--------
1868	March 18,	22 0	--------
1873	December 14,	25 7	38 8
1874	January 8,	22 2	38 8
1876	Sept. 19,	25 0	--------
1877	January 17,	24 6	--------
1878	December 11,	24 5	34 9
1881	February 11,	23 2	38 8
1881	June 10,	27 1	40 9
1883	February 5,	24 8	39 7
1883	February 8,	28 0	35 6
1884	February 6,	33 3	52 6
1885	January 17,	23 0	32 9
1886	April 7,	22 8	32 0
1887	February 12,	22 0	33 8
1887	February 27,	22 0	30 3
1888	July 11,	22 0	27 1
1888	August 22,	26 0	32 2
1889	June 1,	24 0	28 9
1890	March 23,	24 3	33 0
1890	May 24,	22 0	27 5
1891	January 3,	23 2	33 7
1891	February 18,	31 3	44 6
1892	January 15,	23 0	29 1
1893	February 8,	24 0	34 2
1893	February 11,	22 0	33 4
1994	May 22,	23 2	29 9
1895	January 8,	25 8	36 0
1896	July 26,	23 0	27 6
1897	February 24,	29 5	38 8
1898	March 24,	28 9	44 6
1899	March 6,	22 0	28 2
1900	Nov. 27,	27 7	34 7
1901	April 7,	22 1	30 0
1901	April 21,	27 5	41 8
1901	December 16,	25 8	34 0
1902	March 1,	32 4	43 3
1903	February 5,	24 0	34 6
1903	March 1,	28 9	40 2
1904	January 23,	30 0	44 2
1904	March 4,	26 9	39 2
1904	March 8,	23 2	36 3
1905	March 22,	29 0	42 9
1905	December 4,	23 5	31 6
1907	January 20,	23 3	37 0
1907	March 15,	35 5	50 1
1907	March 20,	22 4	31 8
1908	February 16,	30 7	42 8
1908	March 20,	27 3	39 6

APPENDIX A.

REPORT OF THE ENGINEER

TO THE

WATER SUPPLY COMMISSION OF PENNSYLVANIA,

UPON THE CAUSES OF AND METHODS OF RELIEF

FROM

FLOODS IN TURTLE CREEK, WESTMORELAND AND ALLEGHENY COUNTIES.

In reply to requests from the Business Men's Association of Turtle Creek Valley, Allegheny and Westmoreland Counties, an examination was made by the Commission of the flood conditions in the valley of this stream, as it was considered that conditions along this stream were typical of those along many larger streams throughout the Commonwealth. The study resulted in a report to the Commission by its Engineer, embodying the underlying causes of the floods and certain recommendations for their amelioration. This report was subsequently transmitted to the Turtle Creek Business Men's Association, printed and distributed by them and certain of its recommendations are being carried out, while it is the intention to incorporate others in a bill to be presented to the Legislature of 1909 asking for an appropriation for carrying them out. The Commission considers that such conditions as those effecting this stream and the methods by which they may be relieved should be generally known, and with the hope that the suggestions therein contained may perhaps be applied to other streams of the State, the Engineer's report is printed below.

REPORT OF THE ENGINEER

TO THE

WATER SUPPLY COMMISSION OF PENNSYLVANIA,

UPON THE

CAUSES OF AND METHODS OF RELIEF FROM FLOODS IN TURTLE CREEK, WESTMORELAND COUNTY.

Harrisburg, Penna., Jan. 30, 1908.

Water Supply Commission of Pennsylvania:

Gentlemen: I have the honor to submit herewith a report upon flood conditions in Turtle creek, with suggestions as to methods of amelioration, based upon a study of this stream and the available data concerning it.

1. Three kinds of floods occur in Turtle creek valley, namely: local floods in the main creek, floods in small tributaries, and back water floods from the Monongahela river.

2. Considerable actual damage has been done by these floods to property in the valley, the operation of sewerage systems has been impaired and a noticeable depreciation in the value of real estate has been caused. Practically all the damage has been done below the junction of Brush creek and Turtle creek, six and one-half miles above the mouth of Turtle creek in the Monongahela river.

3. Local creek floods are caused by unusually rapid run-off from a hilly, deforested drainage basin and are aggravated by the fact that the creek bed has been raised through the deposition of material washed down from above, while its channel has been contracted and distorted by obstructions.

4. The greatest flood in the creek, which extended up the stream beyond Turtle Creek borough, was caused by back water from a flood in the Monongahela river.

5. Local creek floods may be controlled by improving the channel and by the storage in reservoirs at points above, of the surplus water that the improved channel is unable to carry. Floods in some of

the tributaries may be controlled by like means. Back water floods might be prevented, theoretically, by the construction of tide gates, operating in conjunction with storage reservoirs; but such gates are not recommended for reasons which appear below, and these floods can probably be handled only through controlling floods in the Monongahela and Youghiogheny rivers.

DESCRIPTION OF CREEK.

Turtle creek rises in eastern Westmoreland county and is joined at Trafford City near the western Allegheny county line by Brush creek, which rises near Greensburg, Westmoreland county. The two branches at Trafford City are of nearly equal size, draining a total of 113 square miles, approximately three-quarters of the entire basin of the creek. The stream drains an area of 146 square miles, fan shaped in form, diverging rapidly above Trafford City, 6½ miles above the mouth. Below this point only one tributary of considerable size is received; namely, Thompsons run, which comes in from the north at Turtle Creek borough, 2 miles above the mouth, and drains 16 square miles.

TABLE NO. 36.

Table of Drainage Areas of Turtle Creek and Tributaries.

Stream.	Drainage area in sq. miles.	Per cent. of total.
Brush creek,	57	39
Turtle creek above mouth of Brush creek,	56	39
Thompsons run,	16	11
Direct drainage into Turtle creek exclusive of above,	17	11
Turtle creek, total,	146	100

Extensive deforestation has taken place on the catchment areas of both Turtle creek and Brush creek and a high rate of run-off may be expected. The maximum flood discharge from these two creeks may be expected to reach Trafford City, nearly simultaneously, and their combined flow must then descend the main creek. It is this combined discharge that produces the high water at points below, so that if the flow of one of these branches could be retarded in order that its maximum would come after that on the other, the flood height below would be materialy reduced. The following table shows the extensive depletion of the timber on these watersheds, there being now but 6.7 per cent. of the entire drainage basin forest covered, while on Brush creek but 3.5 per cent. remains in forest.

TABLE NO. 37.

Table Showing Forest Cover on Turtle Creek and Tributaries.

Stream.	Total drainage area in sq. miles.	Area forest covered in sq. miles.	Per cent. of total area that is in forest.
Turtle creek,	146	10	6.7
Brush creek,	57	2	3.5
Thompsons run,	16	1.6	10
Turtle creek exclusive of Brush creek and Thompsons run,	73	7.3	10

RUN-OFF.

Previous to this investigation there had been no discharge measurements made on this creek and an estimate of the maximum run-off to be provided for could be arrived at only by a comparison with other watersheds of similar size and condition, and by a computation of the discharge during past floods based upon the flood slope and cross section. Since taking up this study, however, two gaging stations have been established, one on Turtle creek at East Pittsburg, on November 1st, 1907, and one on Brush creek at Irwin, on January 10th, 1908. Three current meter measurements have been made at East Pittsburg, on November 7th, 1907, January 10th, 1908, and February 15th, 1908, and two at Irwin, on January 10th, 1908, and February 15th, 1908, Table No. 38 shows the results of these measurements.

TABLE NO. 38.

Discharge Measurements on Turtle and Brush Creeks.

Date of Measurement.	Station.	Gage height ft.	Dis. sec.-ft.	Drain. area above sta.	Run-off sec.-ft. Pr. sq. mile.
Nov. 7, 1907,	Turtle creek at East Pittsburg,	1.85	477.3	145	3.3
Jan. 10, 1908,	Turtle creek at East Pittsburg,	1.35	58.1	145	0.4
Feb. 15, 1908,	Turtle creek at East Pittsburg,	6.85	2,931	145	20.2
Jan. 10, 1908,	Brush creek at Irwin,	----------	28.7	38	0.75
Feb. 15, 1908,	Brush creek at Irwin,	----------	696	38	18.3

A computation of the maximum rate of discharge of Turtle creek at the Cable avenue bridge, East Pittsburg, during the flood of March, 1904, the largest local creek flood recorded, using the determined cross section and slope, and the information gained regarding the friction coefficient through the gagings, gives a total discharge of 9375 second-feet, or 64 second-feet per square mile of drainage area.

A study of Neshaminy creek, near Philadelphia, shows a maximum run-off of 136 second-feet per square mile, in the twenty-three years of the record. The general conditions on this watershed are similar to those on that of Turtle creek, but it should be noted that the basin of the Neshaminy is subject to 5 inches more average annual rainfall than that of Turtle creek and that individual rainstorms of which we have record have reached greater intensity on the catchment area of the eastern stream. Thus the rainfall which caused the above high run-off on the Neshaminy watershed was 5.25 inches in 20 hours, while the rainfall which caused the greatest local flood in Turtle creek, that of March, 1904, was only 1.75 inches in somewhat less than 24 hours. We may fairly expect a higher percentage of the rainfall to run off immediately on Turtle creek drainage basin, for from a rainfall of only 1.75 inches in 24 hours there was a run-off of 64 second-feet per square mile of drainage area, against a run-off on the Neshaminy of 136 second-feet per square mile with 5.25 inches of rainfall in 20 hours; apparently one-third as much rainfall gave, on Turtle creek, nearly half as high a rate of run-off.

POPULATION.

The upper watershed of this stream is highly developed agriculturally, while the lower portions of the valleys of the main stream, Brush creek and Thompsons run, are thickly settled, containing approximately 43,000 inhabitants, and are congested by railroads and industrial establishments. The entire watershed has a population of approximately 65,000, giving 446 inhabitants per square mile. Tables Nos. 39 and 40 show the boroughs and larger towns in the valleys of Turtle creek and Brush creek with the population of the boroughs in 1900 and estimated present population.

TABLE NO. 39.

Populations of Boroughs in Turtle Creek Valley.

Name of Borough.	Population in 1900.	Estimated present population.
Jeannette,	5,865	9,000
Irwin,	2,452	3,500
Wilmerding,	4,179	5,500
Wall,	----------	500
Turtle Creek,	3,262	4,000
East Pittsburg,	2,883	4,000
North Braddock,	6,535	7,000
Pitcairn,	2,601	3,000
Penn,	763	800
Manor,	684	800
North Irwin,	403	450
Trafford,	----------	2,100
Total,	29,627	40,650

TABLE NO. 40.

Estimated Present Population of Unincorporated Towns in Turtle Creek Valley.

Name.	Estimated present population.
Export,	600
Westmoreland city,	500
Larimer,	300
Newlandsburg and Murrysville,	300
Total,	1,700

ECONOMIC CONDITIONS IN THE VALLEY.

The valleys of Turtle creek and Brush creek are densely populated, there being a succession of boroughs and towns which extend almost continuously from North Braddock at the mouth of the creek to Jeanette, near the headwaters of Brush creek, a distance of about 20 miles. From Trafford City to its mouth, 6½ miles, the creek valley is an important industrial region. The main line of the Pennsylvania Railroad follows Brush creek from its source to its junction with Turtle creek and thence down that stream to East Pittsburg about three-quarters of a mile above the mouth. At most points it is a four track line, following the creek bank closely, while from Trafford City to Wilmerding, 2½ miles, is an extensive freight classification yard, with round houses and shops. The Turtle Creek branch of the Pennsylvania Railroad follows, by single track, the valley of that creek from its junction with Brush creek to Export near its source. The Bessemer and Lake Erie Railroad follows the main creek from its mouth to Thompsons run, and up that stream to its source, being double track or more the entire distance, while the Westinghouse Interworks Railroad follows the north bank of the creek between East Pittsburg and Trafford City. The Baltimore and Ohio, and Pittsburg and Lake Erie Railroads cross the creek at its mouth. The Cleveland Gas Coal Co. Railroad follows Thompsons run for several miles above its mouth. Trolley tracks follow the stream, connecting the numerous towns in the lower portion of the valley.

At East Pittsburg, bordering the north shore of the creek are the extensive works of the Westinghouse Electric and Manufacturing Co. and the Westinghouse Machine Co., while at Wilmerding, on the south side of the creek, is the Westinghouse Air Brake Co.'s plant, and at Trafford City are located the Westinghouse Foundries. Other large plants are situated in this valley.

SLOPE OF CREEK.

The elevation at the sources of Turtle and Brush creeks is approximately 1,260 feet above sea level, and at their junction at Trafford City it is 756 feet, giving these streams a slope between these points at the rate of 25 feet per mile. For a few miles above Trafford City on both streams the grade is but 8 to 10 feet per mile, while immediately above their junction the valleys are broader and the grade less steep. Below Trafford City the slope is more uniform, being at the rate of 9 feet per mile. From the junction of Thompsons run, which enters at Turtle Creek borough about 2 miles above the mouth, the slope of the creek bed to the mouth is 18 feet or 9 feet per mile. The available fall in the creek, between these points, however, has been reduced to 10 feet, or 5 feet per mile, by the removal of the navigation dam on the Monongahela river, from a point above, to a point below the outlet of the creek. The effect of this dam on flood flow is discussed on a subsequent page.

Repeated floods have washed quantities of material from above, depositing it in the creek and raising its bed considerably. This deposit has resulted from the erosion from this extensively deforested watershed, and from the railroad and other embankments which are constantly under construction along the creek and its chief tributaries. It has probably been augmented by three low dams which cross the creek below the mouth of Thompsons run, and also by the reduction in velocity caused by the raising of the pool level at the mouth.

COURSE OF CREEK.

Above Trafford City both Turtle creek and Brush creek follow sinious courses, while below this point the channel is more direct, having been straightened somewhat in the course of the various construction works in the valley. There still remain certain sharp bends and turns, the straightening of which would result in less frictional loss and less eroding of banks during floods and in a slightly increased slope, permitting of added discharge. One such point is at the Pennsylvania Railroad crossing just below the Westinghouse Air Brake Co.'s plant at Wilmerding.

BRIDGES.

From its mouth to Wilmerding the creek is crossed by 14 bridges, of which eight carry railroads and six highways. Some of these structures obstruct the channel with their piers and abutments. The effect of these bridges on flood flow is discussed subsequently. From the mouth up these bridges are as follows:

TABLE NO. 41.

Bridges Over Turtle Creek, Mouth to Wilmerding.

Name.	Distance Above Mouth.	Location.
Pittsburg and Lake Erie R. R.,	At mouth.	
Lower Union bridge,	350 feet.	
Bessemer and Lake Erie R. R.		
Baltimore and Ohio R. R.,	650 feet.	
Port Perry highway,	1,850 feet.	
Middle Union bridge,	0.5 mile.	
Bessemer and Lake Erie R. R.		
Upper Union bridge,	3,600 feet.	
Bessemer and Lake Erie R. R.		
P. R. R. & P. Y. & C. bridge,	4,500 feet.	
P. R. R. stone arch bridge,	1.0 mile.	
Brinton Highway bridge,	5,500 feet.	
Cable avenue bridge,	1.5 miles.	East Pittsburg.
Westinghouse Elec. and Mach. Co.		
Highway bridge,	2.1 miles.	Turtle Creek borough.
P. R. R. bridge,	2.6 miles.	Wilmerding.
Highway bridge,	3.0 miles.	Wilmerding.
Highway bridge,	3.2 miles.	Wilmerding.

CHANNEL.

Throughout the section of the creek between Wilmerding and the mouth extensive alterations in the channel have been made. As stated above ,its course has been changed at some points while at others embankments, bridges and dams have encroached upon its cross section. At still other points the creek has been walled in between high masonry walls on both sides, while throughout this section its bed has been raised by sediment. Some of these alterations have been beneficial while others have resulted in an opposite effect on the flow of the creek. Table No. 42 includes the most prominent of such alterations.

TABLE NO. 42.

Prominent Alterations in and Encroachments upon the Channel of Turtle Creek Between Trafford City and the Mouth, Omitting Bridges.

Character.	Location.	Remarks.
Section contracted by Middle Union Railroad bridge.	0.5 of a mile above mouth.	
Bank filled out by Bessemer and Lake Erie Railroad.	0.7 of a mile above mouth,--	Extends along creek about 650 feet.
Section contrated by P. R. R. stone arch bridge.	1 mile above mouth.	
Creek walled up by Westinghouse Elec. & Mach. Co. and P. R. R.	Wall begins about 1 mile above mouth at P. R. R. stone arch bridge.	Extends for 3,800 feet to mouth of Thompsons run, both sides being walled in for most of distance.
Low dams at the Westinghouse Elec. & Mach. Co.	East Pittsburg.	
Large bend cut out by P. R. R. and channel straightened and shortened thereby.	At mouth of Thompsons run.	
Creek walled in at Westinghouse Air Brake Co's plant.	Wilmeridng.	

FLOODS.

Floods have been numerous on this creek, and they have apparently been reaching higher elevations and doing greater damage in recent years. Table No. 43 gives a record of the floods in Turtle creek since 1888, showing the heights reached at different points along its course and the elevations of nearby streets and structures.

TABLE NO. 43.

FLOODS IN TURTLE CREEK.

AUGUST 14TH OR 21ST, 1888.

Borough.	Location.	Elevation of highest water during flood.	Nearby Elevations.
E. Pittsburg,	P. R. R. viaduct over Braddock avenue.	735.00	Elev. of street under arch, 731.3.
Turtle Creek,	Penn ave. and N. Y. & C. Gas Coal Co. R. R.	738.40	
Wilmerding,	Junction of T. C. V. & P. R. R. Co.	742.45	Elev. of track, 744.31. Elev. of track July 7, 1903, 745.22. Elev. of track Jan. 15, 1908, 742.74 on bridge.

JANUARY 8TH, 1895.

Borough.	Location.	Elevation of highest water during flood.	Nearby Elevations.
Port Perry,	Near pumping station,	733.39	Doorsill of Eng. room, 737.18.
East Pittsburg,	Brinton bridge,	731.32	Elev. of roadway, 733.0.
East Pittsburg,	Braddock ave. at 2d angle above Arbor street.	731.82	
East Pittsburg,	End of iron drain pipe above punch shop of W. E. & Mfg. Co.	732.50	
Wilmerding,	Air Brake ave. and Short st.,	738.20	Top W. A. B. Co's wall along creek, 743.8.

JULY 16TH, 1896.

Borough.	Location.	Elevation of highest water during flood.	Nearby Elevations.
E. Pittsburg,	Brinton bridge,	733.63	Elev. of roadway, 733.0.
E. Pittsburg,	W. E. & Mfg. Co's punch shop, upper end.	733.60	W. E. & Mfg. Co's creek wall at Cable avenue bridge, 736.3.
Turtle Creek,	Penn ave. and Thompsons run,	736.10	General elev. Penn ave., 736.0. Elev. Penn ave. at run, 739.
Turtle Creek,	Turtle Creek and Wilmerding borough line.	736.20	Air Brake ave. at borough line, 734.3.
Wilmerding,	Air Brake ave. and Short st.,	740.80	
Wilmerding,	Foot of Patton st.,	744.60	
Pitcairn,	In pit of turn table at round house,	756.10	Floor of pit, 752.10.

Floods in Turtle Creek—Continued.

FEBRUARY 23RD, 1897.—BACK WATER FLOOD.

Borough.	Location.	Elevation of highest water during flood.	Nearby Elevations.
Port Perry,	Pump station at 10.30 P. M.,	738.56	Highest water recorded up to this time. Highest previous record, 735.68, in Feb., 1884.
E. Pittsburg,	Brinton bridge,	738.59	Elev. road, 733.0.
E. Pittsburg,	Cable avenue,	738.44	Elev. creek wall, 736.30.
Turtle Creek,	Penn avenue and Thompsons run,	738.57	Gen. elev. Penn ave., 736.0.
Wilmerding,	Air Brake avenue and 3d street,	738.69	Top of paving in gutter, 738.69.
Wilmerding,	W. A. B. Co's lumber shed,	738.69	Bed of creek, 729.0.

MARCH 23RD, 1898.

E. Pittsburg,	Upper Union R. R. bridge, 9.30 A. M.,	729.0	
E. Pittsburg,	Old B. & O. bridge, 9.30 A. M.,	729.8	
E. Pittsburg,	Brinton bridge, 8.30 A. M.,	732.08	Elev. road, 733.0.
E. Pittsburg,	Cable avenue,	732.67	Elev. top creek wall, 736.3.
Turtle Creek,	Old mouth of Thompsons run,	734.23	
Wilmerding,	Lower end of W. A. B. Co's carpenter shop.	738.71	Doorsill carpenter shop, 743.9.
Pitcairn,	Highway bridge to Pitcairn Sta.,	755.90	Floor of bridge, 764.02.

AUGUST 19TH, 1898.

Port perry,	B. & O. R. R. bridge,	713.50	Elev. of tracks under bridge, 730.5.
Port Perry,	Tunnel bridge,	717.88	Elev. of floor, 726.55.
E. Pittsburg,	Old B. & O. R. R. bridge,	723.33	
E. Pittsburg,	Brinton bridge,	726.73	Elev. of street, 733.0.
Turtle Creek,	Thompsons run and Penn avenue,	729.48	
Wilmerding,	West end W. A. B. Co's carpenter shop.	735.84	

APRIL 20TH, 1901.

Turtle Creek,	Old mouth Thompsons run,	737.10	
Wilmerding,	Short street,	742.53	Elev. creek wall, 743.8.
Wilmerding,	Bridge street,	745.06	Top creek wall, 743.8.
Pitcairn,	Highway bridge to station,	757.67	Bridge floor, 763.88.
Pitcairn,	In pit of turn table,	755.70	Floor of pit, 752.10.
Stewart,	T. C. V. R. R. bridge over creek,	765.33	
Stewart,	P. R. R. bridge over Brush creek,	768.00	Top rail, 783.6.

JULY 6TH, 1903.

E. Pittsburg,	Brinton bridge,	732.53	Elev. of street, 733.0.
E. Pittsburg,	Cable avenue,	733.51	Elev. creek wall, 736.3.
Turtle Creek,	Thompsons run and T. C. V. R. R.,	736.05	
Turtle Creek,	Overhead bridge to P. R. R. station,	737.07	
Wilmerding,	T. C. V. R. R. bridge near P. R. R. junction.	741.34	Water level on lower side of bridge was 740.34. One foot back water.
Wilmerding,	Short street,	743.67	Elev. creek wall, 748.8.
Wilmerding,	Opposite east end of W. A. B. shops,	744.98	
Wilmerding,	Foot of Patton street,	746.56	
Pitcairn,	Highway bridge to P. R. R. station,	759.37	Bridge floor, 763.88.
Pitcairn,	In pit of turn table of roundhouse,	755.90	

Floods in Turtle Creek—Continued.

MARCH 3RD, 1904.

Borough.	Location.	Elevation of highest water during flood.	Nearby Elevations.
Port Perry,	P. & L. E. R. R. bridge at mouth,	720.60	
Port Perry,	B. & O. R. R. bridge,	721.00	Elev. track under bridge, 730.5.
Port Perry,	Tunnel bridge,	723.91	Elev. floor, 726.55.
E. Pittsburg,	Upper Union bridge,	729.60	
E. Pittsburg,	P. R. R. stone arch bridge, lower side.	732.88	Water was 0.8 feet higher on upper side. Elev. street under arch, 731.3.
E. Pittsburg,	Brinton bridge, upper side,	734.14	Lower side, 733.60.
E. Pittsburg,	Cable avenue,	736.30	Elev. creek wall, 736.30.
Turtle Creek,	Penn avenue and Thompsons run,	739.19	High water probably from run.
Turtle Creek,	New mouth of Thompsons run,	738.34	
Turtle Creek,	Overhead bridge to P. R. R. station,	738.73	
Wilmerding,	Turtle Creek V. R. R. bridge near junction with P. R. R.	740.60	Elev. track, 742.74.
Wilmerding,	Short street,	743.40	
Wilmerding,	Bridge street,	746.08	
Pitcairn,	Highway bridge to station,	759.28	Bridge floor, 763.88.
Pitcairn,	In turn table pit,	755.02	

MARCH 14TH, 1907.—BACK WATER FLOOD.

Port Perry,	Mouth of Turtle creek,	742.15	Elev. normal pool level, 715.2.
Port Perry,	Tunnel bridge,	742.17	Elev. of floor, 726.55.
Port Perry,	Middle Union bridge,	742.31	Elev. top girder, 741.14.
E. Pittsburg,	P. R. R. stone arch bridge,	742.30	Elev. street under arch, 731.3. Elev. top bridge, 753.55.
E. Pittsburg,	Cable avenue,	742.35	Elev. W. M. Co. floor, 738.5. Top of wall, 736.3.
Turtle Creek,	Penn avenue and Thompsons run,	742.50	
Turtle Creek,	Cor. Braddock and Penn avenues,	742.52	Elev. Penn ave., 736.0.
Turtle Creek,	Grant street,	742.49	Mark on borough building.
Turtle Creek,	Overhead bridge to P. R. R. station,	742.48	Same in Penn ave. opposite bridge.
Wilmerding,	Wall along W. A. B. plant,	743.0	Top wall, 743.8.

The above table shows that since 1888 there have been 10 severe floods in the creek of which those of Feb., 1897, and March, 1907, were caused by back water from the river. They are not confined to the winter and spring as is usual on larger streams, one having come in January, one in February, three in March, one in April, two in July and two in August. In addition to the floods here listed there have been several in Thompson run, and other tributaries which did not occur simultaneously with the Turtle creek floods.

CLASSES OF FLOODS.

A study of each flood of which data was available and of the physical conditions over the watershed led to their classification under three heads.

1. Floods caused entirely by heavy rains and melting snows on Turtle creek drainage basin.
2. Floods in small tributaries of the creek which affect their immediate locality only.
3. Floods caused by back water from the Monongahela river.

CLASS I.

Damaging floods have been caused by excessive run-off from the creek basins alone. Such were the freshets of April 20, 1901, July 6, 1903, March 3, 1904, and the majority of the other floods on this stream. The extensive deforestation of the watershed probably results in a high rate of run-off, while the channel at many points has been so restricted as to be unable to pass the high rate of flow without filling the section to depths which flood territory above.

The flood of March 3, 1904, was caused by rain and melting snow over the watershed of the creek, and reached at Turtle Creek borough an elevation of 738.3, a height about four feet below the back water flood of March 14, 1907. A local flood occurring simultaneously in Thompsons run reached a height in the borough nearly one foot higher than the main creek. This flood put 2.5 to 4 feet of water over Penn avenue and immersed most of the business portion and a considerable part of the residential section of Turtle Creek borough. The water was flush with the top of the wall along the Westinghouse Electric and Machine Co. plant at Cable avenue, East Pittsburg, remaining within this section, indicating that with the creek retained within its banks along this stretch, from 2½ to 4 feet of water may be put over Turtle Creek borough.

The rainfall for five days previous to this flood is given below. The ground was saturated with moisture by the first rains and when the 1.75 inches fell on the 3rd, it passed rapidly off, increasing materially the already high run-off resulting from the steady rains preceding it.

TABLE NO. 44.

Rainfall at Irwin on Brush Creek, February and March, 1904.

Date.	Precipitation in inches.	
February 28th,	.57	Some of this may have fallen as snow and been melted by the rain on the 3d.
February 29th,	.39	
March 1st,	.27	
March 2d,	.00	
March 3d,	1.75	
Total,	2.98	

The Monongahela river at this time reached a maximum stage at Pittsburg on March 5th, of 26.5 ft., elevation 723.7 feet, being 9.3 feet below the maximum of March, 1907. At the time of the highest water in Turtle creek, however, the river at its mouth was at an elevation of 720.5, while at Turtle Creek borough it stood at elevation 738.5, the surface of the flood thus assumed a profile approximately parallel to the creek bottom and showed no influence of back water, except close to the mouth. This indicates that this flood was not caused by back water and that it came previous to the highest water in the river. When the back water from the river did come it caused a much lower stage in the creek than did the flood waters from the creek basin. At this time the United States Government navigation dam crossed the stream above the mouth of the creek, while at the time of the 1907 flood it had been moved to a point a short distance below the creek mouth and caused an elevation of the normal river water level of 7.85 feet above the old pool level.

CLASS 2.

The floods upon tributaries which have occurred several times are due to local "cloudbursts" causing sudden rises in these streams and in the creek. Such floods do not always assume large proportions in the creek itself, but do considerable local damage. They result from the barrenness and steepness of the hills bordering the valley, from which the water rushes off without confining itself to the usual channels, overflowing streets, etc. The chief damage at Wilmerding has been by floods of this class and it seems that certain of the smaller floods at Turtle Creek borough have been of a similar nature, the water coming from Thompsons run. The Westinghouse Electric and Manufacturing Co. has been seriously damaged by floods of this class in Fall Hollow run, a small stream with a drainage area of 2.7 square miles, which passes under the works in an arch culvert. This culvert, which has been somewhat contracted by deposition, proves incapable of passing the required volume of water, causing back water behind it and flooding the works and part of the borough of East Pittsburg. The floods in this run are naturally worse when Turtle creek is high and covers the mouth of the culvert at the retaining wall on the creek bank, retarding the discharge therefrom. The culvert has to be cleared of debris and the deposit of gravel and boulders after nearly every flood.

CLASS 3.

Back water floods are less frequent than those arising from other causes, coming only with extraordinarily high river stages. There have been only two floods of this kind in Turtle creek since 1884, those of February, 1897, and March, 1907.

The greatest flood in Turtle creek valley was that of March 14, 1907, which resulted from back water from the Monongahela river. The records at hand show that this flood was the greatest on that river, higher by 3.5 feet at the mouth of Turtle creek than any preceding flood. It occurred at the time of the great flood at Pittsburg, for which the Monongahela river was largely responsible.

The flood run-off from the creek basin must fortunately have nearly passed by the time of the arrival of the crest of the Monongahela flood at the mouth of the creek, as the slope of the water surface at the maximum stage was only 0.9 feet in the lower two miles, while the slope of the water surface during local floods is 10 feet in this section. Moreover, the creek had but a slight velocity at the time of maximum high water and there were no indications of water backing up behind bridges and other channel obstructions as there would have been had this flood been caused entirely by a large run-off in the creek.

There had been at this time one of Turtle creek's periodic local floods, which had begun to recede on the 13th, but early in the morning of the 14th, it assumed alarming proportions, and reached its maximum height at Turtle Creek borough of 742.5 feet above sea level at 3.30 P. M., this level extending from the creek mouth to and beyond Turtle Creek borough. The back water effect was felt at Wilmerding, but did not rise above 743.8, the elevation of the top of the wall bordering the creek at the Westinghouse Air Brake Works. The creek flood, which came prior to the back water flood, just filled this channel, and the back water held to a like position.

The water rose to a height of from 5 to 8 feet above the streets and floors of the stores in the business section of Turtle Creek borough, 3 to 5 feet over the shops of the Westinghouse Electric and Manufacturing Co., and the Westinghouse Machine Co., at East Pittsburg, both of which works were forced to shut down. The water was 10 feet deep, over some of the streets of East Pittsburg, and 17 feet deep over the street leading from the Port Perry bridge, while other towns and industrial works were submerged to a greater or lesser depth.

The only other back water flood since 1884 was that of February 23rd, 1897. This flood, as seen in table number 9, reached a height 4 feet lower than that of March 14, 1907, reaching a maximum at 10.30 P. M. It came at the time of a flood in the Monongahela river which reached a maximum elevation at the creek mouth of 738.6 the highest water recorded in the Monongahela river at this point up to that time. The highest previous elevation reached was 735.7 in February, 1884.

Similar conditions will prevail while floods in the Monongahela river go unchecked, and if conditions of rainfall, melting snow, etc., should so occur as to cause the maximum rate of run-off from Turtle creek basin to coincide with the arrival of the maximum stage in the river at the creek mouth, worse results must be expected. Fortunately, owing to the relative sizes of the two drainage basins, the maximum rate of run-off in Turtle creek usually passes before the maximum stage in the river reaches the creek mouth.

CONTROL.

CONTROL OF BACK WATER FLOODS.

These floods, due to back water from the river, will keep recurring and perhaps increasing in frequency and height until provision is made for river control, for obviously no improvement in the creek channel would in any way reduce the effect of such floods in Turtle creek valley. To shut them out of Turtle creek valley would require the placing of gates across the stream at its mouth and their regulation would necessitate expert supervision, for as soon as the gates were closed the creek water could find no outlet and must back up. If good judgment were not used in their manipulation, damage exceeding that due to back water from the river might result. Such gates could only be operated in conjunction with storage reservoirs on the creek watershed above, and must be placed in a dam crossing the entire creek valley, rising to at least 45 feet above the present creek bed. The cost of such works would be heavy and their operation would necessitate a constant and high operating expense. These floods are infrequent and it is hoped that before many years some control over the Monongahela river may be effected, so that a heavy expenditure on Turtle creek to guard against Monongahela river floods at this time would seem ill-advised.

FLOODS ON TRIBUTARIES OF TURTLE CREEK.

CONTROL OF LOCAL FLOODS.

As stated above, damage has been done along Turtle creek valley by heavy precipitation concentrated on small areas which run rapidly off the barren hillsides bordering the creek. This damage may in some measure be lessened and one of the first steps should be in this direction.

To relieve the conditions which exist on Fall Hollow run, previously described, the following are suggested.

1. Thorough dredging of the existing culvert would secure the advantage of its full cross section, but to obtain the full benefit of this work, the main creek must also be dredged as outlined later.
2. Flap gates could be provided for all catch basin and manhole openings in the culvert between the mouth and its upper end, which gates, when automatically closed during a flood, would increase the discharge by means of the additional head so obtained.

3. Surveys indicate that a suitable site exists for a reservoir at the forks of the creek about $1\frac{1}{2}$ miles above the mouth, above which lies about 50 per cent. of the basin of the stream. This reservoir might serve the double duty of controlling floods and furnishing an additional gravity water supply, as the water would be of much better quality than that in the creek.

THOMPSON'S RUN

Thompsons run has apparently been a great offender against Turtle Creek borough, and its improvement and control would prove beneficial at that point. The stream, which joins Turtle creek from the north passing directly through the borough and under the main business streets, drains a barren area 16 square miles in extent. Nine bridges cross the stream within the borough and others beyond, some of which are obstructions of a serious character, and the bed of the lower portion of the run has been raised several feet and sewer outlets obstructed by deposits of debris brought down from above. Construction work along its banks over a considerable portion of its course has doubtless increased this deposition. The run flows in a narrow valley until the last quarter of a mile of its course, where in the borough of Turtle Creek, the valley widens. In this lower section the chief trouble occurs, for the water backs up behind certain of the bridges of insufficient cross section placed at sharp bends in the stream, and takes the easiest and most natural and direct course down the streets. This is especially the case when the channel at those points is blocked by ice, logs and floating debris, which gather behind the bridges.

To relieve the above conditions on Thompsons run, the following measures are suggested.

1. Straightening of certain bends, as at the Church street bridge, and the N. Y. and Cleveland Gas & Coal Co. bridge, would increase the flood carrying capacity of the channel.

2. Walling up the channel through this section to join the wall of the Westinghouse Electric Co. at the mouth, or at least placing such walls at points where the run now leaves its banks, would increase the flood carrying capacity, and probably hold the flood waters within the banks.

3. Enlarging bridge openings at several points would remove a considerable factor in the floods in this run. The Westinghouse Interworks deck plate girder bridge, the second from the mouth of the run could be made a through bridge, adding about 4 feet of headroom. The Church street bridge, a borough structure, and the New York and Cleveland Gas and Coal Co. bridge, the next down stream, might advantageously be raised and their spans lengthened in moving them to the new positions necessary if the bends on the stream at this point were straightened as suggested in Number 1. A short

through plate girder bridge of the New York and Cleveland Gas and Coal Company further upstream could advantageously be lengthened to give an increased waterway and in its reconstruction the alignment of the channel could be considerably improved as in the cases above mentioned.

4. Storing the flood waters in reservoirs upon the drainage basin of this stream would be beneficial, but examination failed to disclose a suitable site.

5. Dredging the channel within the borough limits to a proper cross section and a slope descending uniformly to the finished channel of Turtle creek at the mouth, would increase the flood carrying capacity and, combined with the recommendations offered above, would probably retain local floods within the banks. But such a remedy would be only temporary, unless measures were taken to stop further deposition of material in the stream bed above or along its banks, at points where, unless protected, erosion by the flood waters takes place, and to protect the present railroad embankments bordering the stream from erosion by suitable rubble walls or riprap.

Other small streams such as Sawmill Valley run, which joins Turtle creek from the north just above Thompsons run, and several small streams at Wilmerding, which overflow their banks after heavy rains and do considerable damage, can be regulated by similar methods.

CONTROL OF FLOODS IN TURTLE CREEK PROPER.

All but two of the ten floods recorded in table number 9, were in the creek proper, due to rapid run-off from its watershed. A study of the causes leading to these floods indicates that they may be ameliorated by proper works as follows:

1. Straightening the channel at certain points where sharp bends occur will increase the fall and decrease frictional losses. Such a point exists at the Pennsylvania Railroad crossing between Turtle Creek borough and Wilmerding, and another near the mouth just below the Pennsylvania Railroad stone arch bridge. It might be noted that at the mouth of Thompsons run an improvement of this nature has been made.

2. Walling up the banks, particularly at low points and at bends, will increase the discharging capacity of the section and prevent local overflow and washing of banks.

3. Dredging the channel of the creek from about Cable avenue, East Pittsburg, past Turtle Creek toward Wilmerding and squaring up the cross section throughout the length of the creek from its mouth to Trafford City, will increase the capacity of the channel. The channel has been greatly filled in by deposits washed from above so that additional depth of several feet may be so obtained. The low water channel does not show such extensive deposits as does the creek bed on each side thereof. This dredging, in order to be of lasting

benefit, should be accompanied by suitable protection of the railroad embankments along its shores, where liable to erosion, and the discontinuance of works higher up on the creek, the washings from which would deposit below.

4. By constructing storage reservoirs on Turtle creek and Brush creek near Trafford City for retaining flood waters, the discharge during floods may be so regulated as to decrease damage below through water backing up behind contractions of the channel and consequent overflow.

Computations of the flood discharge when the creek channel is flowing full to such a height as not to overflow its banks, indicate that at such height all reduced sections and all bridge openings, except the P. R. R. stone arch bridge and the Middle Union Railroad bridge, will carry a flood representing a flow at a rate of 50 second-feet per square mile. The flood of March 3rd, 1904, with its estimated maximum rate of discharge 64 second-feet per square mile, could not be carried by the creek channel at several points, its profile showing that the water backed up above the Brinton bridge and the Pennsylvania Railroad stone arch bridge, and also that in order for flood waters to be carried by the walled-in channel along the Westinghouse works at East Pittsburg it was necessary to fill that channel to such a height as to submerge streets in a neighboring towns. Data with reference to Neshaminy creek, watershed 152 square miles, 6 per cent. forests, indicate that a maximum rate of discharge of 140 second-feet per square mile might under extraordinary conditions be expected. Several of the obstructions mentioned above are of a substantial character and expensive to alter, while others can be more readily changed to allow of an increased section. The reservoir suggested above should be designed to hold all flood water over and above a discharge of 50 second-feet per square mile, but the calculation of capacity of sections below involves the straightening, walling and dredging outlined above.

Near Trafford City, reservoirs could be formed by dams or embankments, 20 to 25 feet above the creek bed, one about 100 feet long on Brush creek and a much longer one on Turtle creek, a few hundred feet above their junction. Back water would extend up Brush creek about 1½ miles and up Turtle creek about one mile. Each reservoir, when full, would flood about 125 acres, and the combined capacity would approximate 150 million cubic feet. The area required for these reservoirs is partly barren unused land and partly under cultivation, with perhaps half a dozen small houses upon it. The Pennsylvania Railroad crosses the site of the Brush creek reservoir at an elevation above the proposed water surface. These reservoirs are estimated to hold the surplus between the allowable discharge of 50 second-feet per square mile and the possible extraordinary flow of 140 second-feet if this rate was maintained about four hours. The maximum rate in the 1904 flood is computed to have reached 64 second-feet per square mile so that these proposed reservoirs could have retained the surplus 14 second-feet per square mile had it continued for about 25 hours. It may be expected that the channel improvements to the main creek and its lower tributaries would enable the floods in Thompsons run, Fall Hollow run, etc., to be exhausted before a high rate of run-off reached Turtle Creek borough from above Trafford City.

Table No. 45, shows the allowable heights of floods at various points along the creek, *i. e.*, the height at which it is believed no overflow would occur when the improvements suggested have been made. The slope of the surface is approximately that which would result from a flood within these allowable proportions.

TABLE NO. 45.

Allowable Flood Heights.

Location.	Elevation above sea level.
East line Turtle Creek borough,	740.0
Mouth of Thompsons run,	735.0
Cable avenue, East Pittsburg,	732.5
P. R. R. stone arch bridge,	729.1
Upper Union bridge,	726.5
Middle Union bridge,	725.0
Tunnel bridge,	723.5
B. & O. R. R. bridge,	721.0
Mouth,	720.0

In compiling this table the elevation 720 at the mouth of Turtle creek has been assumed, as that of an ordinary high stage in the Monongahela river during the spring or freshet season. The pool level is five feet lower than this and when floods in the creek occur with a lower stage in the river than 720 an additional slope is available and a greater discharge can be passed. This effect is noticed in comparing floods of approximately equal size on the Monongahela river, one occurring when the Allegheny is in flood, and the other when there is no flood on that river. In the former case there is less slope on the Monongahela river and consequently a higher crest. If the navigation dam had not been moved from above, to below the mouth of the creek, this allowable elevation instead of being 720 could have been 713, giving an additional 7 feet of slope in the lower section of the creek where several bridges of small cross section cause obstructions.

Assuming elevation 740 at the upper end of the borough of Turtle Creek, will probably necessitate raising the low portion of Air Brake avenue six feet as well as certain low lands occupied by several houses bordering the creek. Air Brake avenue is lower in the upper part of the borough than in the business section, where it is known as Penn avenue, and floods overflow the creek bank at this point, following this street into the town. This land might be elevated with the material dredged from the creek channel.

The Pennsylvania Railroad stone arch bridge apparently did not pass the flood of 1904 and computations fail to show at the elevation shown a section sufficient to pass the allowable 50 second-feet per square mile, but by using the third arch for flood waters and placing the railroads tracks which pass under this arch on a trestle, this section can be made large enough. The Middle Union Railroad bridge has an opening but 58 feet wide and it should be widened 10 feet. When filled to the allowable section it now passes but 36 second-feet per square mile.

Owing to the comparative sizes of the catchment areas of the Monongahela river and Turtle creek, the floods in this creek may be expected to be, and usually are, discharged before very high stages in the river reach the creek mouth, but it is quite possible, under the present conditions, for a creek flood to be coincident with a back water flood from the river, as it is only necessary in order to cause this condition, to have rains on the Turtle creek basin occur a day or two subsequent to those on the Upper Monongahela and Youghiogheny river basins. As under such circumstances worse floods than any hitherto experienced might be expected, it is essential to be able to control the creek floods, passing the water out ahead of the river flood; or, when necessary, retarding them, to pass out after the crest of the river flood has passed the creek mouth. Straightening the channel, dredging, walling and the removal of obstructions suggested above will do much to hasten the discharge of creek floods, and when conditions of later rainfall take place on Turtle creek, the floods so caused can be retarded by the proposed reservoirs at Trafford City.

EFFECT OF CHANGE OF NAVIGATION DAM.

When floods in the river assume such proportions as to cause back water up the creek as far as East Pittsburg and Turtle Creek borough, the flood section in the river is much increased and probably little influenced by the dams. This is shown by profiles of various floods, which indicate less and less of an interruption to a straight line at the dams, as the floods increase in height.

REPORT

OF THE

WATER SUPPLY COMMISSION

OF

PENNSYLVANIA

1909

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*Henry M. Brackenridge's term expired June 1st, 1909.

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REPORT

OF THE

WATER SUPPLY COMMISSION OF PENNSYLVANIA.

Office of the Water Supply Commission,
Harrisburg, December 31st, 1909.

To His Excellency; The Governor of the Commonwealth of Pennsylvania:

To the Members of the Senate and the House of Representatives of the Commonwealth of Pennsylvania:

In compliance with the provisions of the Act of the General Assembly, approved May 4th, 1905, The Water Supply Commission of Pennsylvania respectfully submits its report for the year 1909.

The Commission has, during this year, approved 37 applications for the incorporation of water and water power companies, and one agreement of merger. The following table shows the number of companies incorporated, with the approval of the Commission, each year since its creation, and the present status thereof.

TABLE NO. 1.

Present Status of Water Companies Incorporated Between May 4th, 1905, and January 1, 1910.

Year.	Number incorporated.	In Operation.		Under Construction.		Not operating.	
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
1905 (May to December),	6	4	67	0	0	2	33
1906,	30	20	67	1	3.6	9	30
1907,	33	21	64	2	6	10	30
1908,	20	9	45	4	20	7	35
1909,	38	17	45	1	3	20	52
Totals,	127	71	56	8	6	48	38

The number approved in 1909 is the largest number formed in any one year since the Commission has been in existence. Figure No. 1 shows, in diagramatic form, the reduction in the rate of incorporation of water companies effected by the Commission.

The physical examination of the water supplies of the Commonwealth, undertaken in accordance with instructions given by the Act of Assembly of 1905, for the Commission to acquaint itself with the condition of the water supply of the State, has been completed, and the results thereof are embodied in Chapter No. 1, from which it appears that there are 588 active water works systems owned by municipalities or incorporated water companies, operating in Pennsylvania, more than reported in any other State in the Union.

The status of all water and water power companies incorporated by the State has been examined into and their present condition determined, showing that of the 1751 companies formed, 851 are in operation, 176 have been dissolved by court, 234 have filed affidavits that they are out of business, 24 have been purchased by municipalities, and 95 mergers or consolidations, or combinations by purchase of rights and franchises, have been formed, involving a total of 388 constituent charters. These facts are set forth in detail in Appendix A.

Under the Act of May 28th, 1907, 28 applications were made during 1909, for approval by this Commission of encroachments or obstructions in streams, of which 27 received approval. In approving applications for the construction of dams in navigable rivers, the condition has been imposed that companies constructing such dams must agree to make provision for future locks, if navigation on said stream is ever improved. In the case of bridges over such streams, provision is made that companies erecting bridges must provide draws or higher clearance if required, in the event of the improvement of navigation. Riprapping of river banks is being secured wherever encroachments are allowed.

The system of streams gagings, by which daily determinations of the flow of the water courses of the Commonwealth is being ascertained, has been maintained and enlarged, 14 new stations having been added. Of these, 9 were established under a co-operative agreement with the Flood Commission of Pittsburgh.. Permanent daily records of stream flow are now available at 69 stations on Pennsylvania streams in this State, or immediately adjacent thereto. The results of this work may be had on application, and it is expected to publish full data upon the flow of Pennsylvania streams at an early date.

The rates charged for water have been brought to the attention of the Commission, and their prominence in most disputes between water companies and consumers has led to a thorough study of the question. In Chapter 2 is included the Commissioner's information on this matter and its conclusions thereon.

The Commission has found urgent need, on account of the many legal matters involved in its work, of a compilation of the laws and court decisions relating to water and water power companies, and such it contained in Chapter No. 3.

As a result of familiarity with the water supply problem in Pennsylvania, the Commission is of the opinion that considerable changes are desired in existing legislation, and the following recommendations are submitted for the consideration of the General Assembly.

1. The law now provides that only those water companies incorporated subsequent to the Act of May 4, 1905, shall be required to obtain the approval of the Commission of new or additional sources of supply. In order that the Commission may more thoroughly control the equitable distribution of the water supply of the Commonwealth, all water companies, whether incorporated before or after the formation of the Commission, and municipal water works, should be required to have such approval. This requirement should also include industrial and manufacturing corporations heretofore or hereafter formed, which use or contemplate taking water from the streams of the State.

2. Numerous complaints by citizens, or by borough authorities have been made to the Commission, against the inadequacy of the supply furnished by water companies, or requesting the Commission to aid in obtaining extensions or enlargements to distribution lines of such companies. It seems desirable that the Commission should be empowered by the Legislature to receive and consider such complaints and to recommend to the Attorney General such action as it may see fit. The proviso in the Act of May 4th, 1905, which restricts the jurisdiction to points outside the municipality should be repealed and affirmative legislation enacted.

3. Controversies between municipalities and water companies concerning the rates charged are frequent, and the Commission has devoted considerable study to this subject. It was found that rates vary widely and are usually not based upon the cost of plant and operation. It is felt that the Commission should be empowered, where such questions are brought before it, to recommend equitable rates.

4. Under the Act of May 21, 1901, water companies incorporated for the supply of the public are permitted to extend their service into an adjacent district, by filing a written request of a majority of the property owners in such adjacent district, with the Recorder of Deeds in the county seat, who in turn certifies such request to the Secretary of the Commonwealth. This act was passed following the decision of the Supreme Court in the Bly v. White Deer Water Company case, in which it was held that a water company could supply but one municipal district and it was evident that as the residential sections often extended without the city or borough limits and should reasonably be supplied by the water company operating in the city or borough, that such water company should thus legally do so. In order

that the Commission may properly control the limits of the supply of water companies, and may keep complete and up-to-date records regarding their operation, it is recommended that the Act of May 21, 1901, P. L. 270, be so amended as to provide that no such extension can be made without the approval of the Water Supply Commission.

5. Investigations have disclosed instances in which water companies overcome the virtual restriction of the sale of water in one district, by supplying large consumers, whose industrial plants or other points of consumption are outside of said district, at a point within the district, the consumers laying the necessary pipe to outside points. In this way an extension of the territory is effected and in some cases the quantity of water so supplied is so large a part of the total consumption that it has been known to interfere with the legitimate service in the district for which the water company is incorporated. It is recommended that legislation be enacted to remedy this condition.

6. The existing law providing for the extension by the Courts of Common Pleas of the period of time within which the plant and works of water companies must be completed should be amended so as to require the approval of this Commission to all such extensions.

7. Owing to ambiguity in existing laws, the Commission recommends the passage of Legislation defining the rights of water power corporations as to damming public streams wholly within or boundary to the State of Pennsylvania, subject to the approval of, and under such limitations as may be imposed by the Water Supply Commission.

8. Several apparently desirable water power projects on Pennsylvania rivers have been injured by reason of the inability of the Forestry Commission to grant permission for raceways or for flooding State forest lands for water storage. The Commission recommends that under proper supervision and approval of the Forestry Commission, water power companies be allowed to secure the use of land from the State for this purpose.

9. It is recommended that the Act of May 28th, 1907, requiring the approval of the Commission for obstructions in or encroachments along streams, be amended to include all streams, and providing a penalty for the violations thereof.

10. Owing to the damage by floods in the spring, and to the low condition of the streams in the summer and fall, steps should be taken to prevent the latter and conserve flood water in reservoirs for maintaining dry weather flow. It is recommended that the Commission be directed to locate and survey suitable sites for such reservoirs, and estimate the cost thereof, and report upon the advantages to be gained by their construction.

Respectfully submitted,

JOHN BIRKINBINE, F. W. FLEITZ, T. J. LYNCH,
S. G. DIXON, R. S. CONKLIN.

CHAPTER I.

DISCUSSION OF PUBLIC WATER SUPPLIES.

Since its organization in 1905, the Water Supply Commission of Pennsylvania has carried on a systematic examination of the domestic and industrial water supply systems in the Commonwealth, involving the examination of all municipal, incorporated and many of the numerous small private water works, and during the year 1909, was able to complete this work. Each plant was visited and examined by a representative of this Commission, and the facts ascertained incorporated into reports upon the conditions of the water supply of each county. Maps were prepared of each county on a scale of approximately one mile to the inch, upon which were plotted the sources of supply of the various water supply systems, pipe lines, reservoirs, points of distribution, etc., indicating the streams which are in use and the purpose or purposes to which they are devoted. In addition to this all the charters granted by the State for water companies were investigated and their disposition and present status ascertained, the results of which examination will be found in Appendix A. It is the purpose of this chapter to present the salient features disclosed by this examination, limiting, however, the discussion to domestic water supplies, and leaving the consideration of distinctly industrial works for a future time.

There are 755 systems of supply furnishing water for domestic use in the Commonwealth, of which 455 are owned and operated by corporations formed for this purpose, 133 by municipalities, while 167 are the property of partnerships or individuals. In Appendix A are given lists of the municipal plants and incorporated water companies in active operation. Most of the systems, although supplying water essentially for domestic purposes, furnish it to a greater or less extent for industrial use, but in some cases it is difficult to determine which is the preponderating purpose, noticeably in the case of systems owned by industrial or manufacturing concerns, which, having put in water works primarily to supply their plants, furnish water also for domestic purposes. Municipal water works and incorporated water companies, formed for the purpose of supplying water to the public, furnish it for industrial consumption as well.

These systems supply all of the 30 cities of Pennsylvania, 541 of the 834 boroughs, and numerous unincorporated towns, including a total population of approximately 4,500,000, or 58.7 per cent. of the population of the State. So far as this investigation has determined, there is no single municipality or unincorporated community of over 2,500 population which has not a public water works systems, while there are few communities having between 1,500 and 2,500 population not being so supplied, and where such exist it is usually due to the physical features of the surrounding country, character of the inhabitants, or legal difficulties preventing the use of favorable sources of supply. Most towns of over 1,000 population are provided with public water supplies, but there are some instances of contiguous communities, whose combined population would seem to be large enough to warrant water works, which as yet have not been so provided.

Many small boroughs and villages have water works, due either to a progressive spirit and faith in future growth, or to an unusually favorable location of a source of supply. The smallest borough which has a public water supply is Hayville, Allegheny County, population 166, which is supplied by the Haysville Water Company, and the smallest unincorporated village thus supplied by an incorporated water company is Woodward, Center County, population 75, supplied by the Woodward Water Company. The unincorporated supplies are not considered in the above as it is seldom that these systems supply or attempt to supply all of the community in which they operate, and numerous systems of this class are possible only by reason of some industry for which they were originally installed, or some person who has furnished other parties with water after putting in a line for his own use.

The following table shows the prevalence of water works in Pennsylvania municipalities.

TABLE NO. 2.

Prevalence of Water Works in Pennsylvania Municipalities.

Population 1909.	Number of municipalities of given population having a public supply.	Number of these places under municipal ownership.	Number of these places under corporate ownership.	Number of municipalities not being supplied.	Total population of municipalities served with water.	Total population of places of given population.
Under 500,	31	4	27	213	11,209	69,619
500 to 999,	106	25	81	82	77,422	135,236
1,000 to 1,499,	76	22	54	15	95,368	114,185
1500 to 1999,	66	12	54	8	116,283	130,245
2000 to 2499,	43	10	33	2	94,634	98,784
2500 to 2999,	27	3	24	0	74,504	74,504
3000 to 3999,	56	14	42	0	195,277	195,277
4000 to 4999,	18	5	13	0	79,498	79,498
5000 to 10,000,	85	14	71	0	576,832	576,832
10,000 to 50,000,	53	17	36	0	987,272	937,272
Above 50,000,	10	7	3	0	2,666,189	2,666,189
Total,	571	133	438	320	4,274,488	5,127,637

It will be noticed that this table does not include the incorporated water supplies in unincorporated villages. There are about 175 such villages being supplied by incorporated water companies in Pennsylvania whose combined population is approximately 150,000.

The distribution of water supply systems in Pennsylvania is naturally in accordance with the distribution of population, that is, the largest plants and the most numerous systems are found in the more densely populated territory. In order, however, to show in a general way, the location of water supply systems, the following table, No. 3, is inserted, which indicates the number and ownership of water works in each county.

TABLE NO. 3.

Distribution of Municipal and Incorporated Water Supply Systems.

County.	Incorporated.	Municipal.	Total number.
Adams,	2	3	5
Allegheny,	16	11	27
Armstrong,	5	2	7
Beaver,	17	4	21
Bedford,	3	2	5
Berks,	18	2	21
Blair,	4	9	13
Bradford,	6	1	7
Bucks,	7	3	10
Butler,	2	4	6
Cambria,	24	3	27
Cameron,	2	0	2
Carbon,	12	0	12
Center,	15	4	19
Chester,	5	8	13
Clarion,	5	2	7
Clearfield,	12	2	14
Clinton,	8	3	11
Columbia,	6	0	6
Crawford,	1	5	6
Cumberland,	6	1	7
Dauphin,	12	2	14
Delaware,	6	1	7
Elk,	3	1	4
Erie,	2	4	6
Fayette,	6	1	7
Forest,	1	0	1
Franklin,	7	1	8
Fulton,	1	0	1
Greene,	1	0	1
Huntingdon,	6	0	6
Indiana,	10	2	12
Jefferson,	5	1	6
Juniata,	3	0	3
Lackawanna,	9	0	9
Lancaster,	10	6	16
Lawrence,	5	0	5
Lebanon,	11	2	13
Lehigh,	4	5	9
Luzerne,	17	0	17
Lycoming,	5	1	6
McKean,	7	1	8
Mercer,	4	4	8
Mifflin,	2	0	2
Monroe,	9	1	10
Montgomery,	16	2	18
Montour,	0	1	1
Northampton,	10	4	14

TABLE NO. 3—Continued.

Northumberland,	8	0	8
Perry,	4	2	6
Philadelphia,	2	1	3
Pike,	2	0	2
Potter,	9	1	10
Schuylkill,	30	5	35
Snyder,	4	0	4
Somerset,	9	1	10
Sullivan,	2	0	2
Susquehanna,	7	0	7
Tioga,	5	3	8
Union,	2	1	3
Venango,	4	3	7
Warren,	3	0	3
Washington,	10	1	11
Wayne,	3	0	3
Westmoreland,	15	2	17
Wyoming,	4	1	5
York,	11	3	14
Total,	482	134	616

This shows the greatest number of plants to be in Schuylkill county, where 35 separate systems are in operation. In this county are united an agricultural region, dotted by many prosperous small boroughs, and the anthracite coal district, densely inhabited and including many industrially active communities. The next largest number is in Allegheny county, where suburbs of Pittsburgh require numerous separate systems and the many industrial centers along the shores of the three rivers have brought water works plants into being. Every county has at least one plant, Fulton, Forest, Green and Montour counties, mountainous and sparsely inhabited regions, each having but one system.

HISTORICAL.

Probably the first water works system to be put in operation in Pennsylvania is that supplying the village of Shaefferstown, Lebanon county, an unincorporated village, population about 1,000, the plant being now owned by the Shaefferstown Water Company, incorporated by Special Act in 1845. The works were built by a Mr. Shaeffer about 1732, and at his death were left to the town, each property owner on the main street becoming a stockholder, and all such stockholders paying ten cents per head per year for each member of the family; others not stockholders pay 20 cents per head per year. There are no dividends, operation and maintenance being cared for from the funds collected as above described. The water is secured by gravity from a copious spring immediately adjacent to the town, and is piped into large troughs erected on the main street.

The first water works pumping plant built in Pennsylvania was at Bethlehem, Northampton county, constructed in 1754, by Hans Christopher Christiansen, water being obtained from a spring rising near Monocacy Creek and pumped by means of water power into a wooden distributing tank. The pump was made of lignum vitae, the cylinder being 5 inches in diameter. The first steam pumping plant in Pennsylvania was installed in Philadelphia in 1801, the water being taken from the Schuylkill River at the foot of Chestnut Street. On the site of the present city hall was a secondary pumping station and elevated tanks, from which the distribution was effected.

The earliest water company incorporated in Pennsylvania was the Water Pipes of Aaronsburg, incorporated by Special Act of the Legislature March 25th, 1809, for the supply of water in Aaronsburg village, Center county. The oldest incorporated water company which is still in active operation is the York Water Company, incorporated February 8th, 1816, for the supply of water in the city of York. It was the second water company to be incorporated in Pennsylvania.

The following table gives the date of construction, in chronological order, of water works built previous to the year 1825:

TABLE NO. 4.

Date of Construction of Early Water Works.

Place.	Date of construction.
Schaefferstown village, Lebanon county,	About 1732
Bethlehem borough, Northampton county,	1754
Philadelphia city, Philadelphia county,	1801
Beaver borough, Beaver county,	1808
Aaronsburg village, Center county,	About 1809
Rebersburg village, Center county,	1809
York city, York county,	1816
Easton city, Northampton county,	1817
Chambersburg borough, Franklin county,	1818
Reading city, Berks county,	1819
Henrysburg village, Center county,	1819
Columbia borough, Columbia county,	1824

The following table shows the dates of installation of water works in municipalities having populations exceeding 20,000, indicating at what an early date many of these communities were thus supplied:

TABLE NO. 5.

Date of Construction of Water Works of Municipalities Having Populations Exceeding 20,000.

Place.	Date of construction of first water works.
Philadelphia city, Philadelphia county,	1801
Pittsburgh city, Allegheny county,	1828
Scranton city, Lackawanna county,	1853
Reading city, Berks county,	1819
Erie city, Erie county,	1850
Wilkes-Barre city, Luzerne county,	1859
Harrisburg city, Dauphin county,	1833
Lancaster city, Lancaster county,	1835
Altoona city, Blair county,	1859
Johnstown city, Cambria county,	1866
Allentown city, Lehigh county,	1827
McKeesport city, Allegheny county,	1882
Chester city, Delaware county,	1867
York city, York county,	1816
Williamsport city, Lycoming county,	1856
New Castle city, Lawrence county,	1881
Easton city, Northampton county,	1817
Norristown borough, Montgomery county,	1847
Shenandoah borough, Schuylkill county,	1870

In the next table the 133 municipal and 455 incorporated water supply systems are classified according to the dates when a fairly complete system of water supply was first installed.

TABLE NO. 6.

Classification by Dates of Construction of Water Works.

Year.	Water Supply Systems.			Total water companies incorporated.
	Municipal.	Incorporated.	Total.	
Previous to 1850,	11	12	23	40
1850–1860,	3	11	14	40
1860–1870,	8	18	26	46
1870–1880,	17	25	42	49
1880–1890,	12	91	103	293
1890–1900,	55	140	195	467
1900–1910,	27	158	185	816
Total,	133	455	588	1,751

This table indicates the gradual increase in activity in water works construction up until 1900, when there was a slight falling off in such work. It is noticeable also that between the years 1900 and 1910, slightly less than half as many municipal works were established as in the previous decade, and that previous to 1880 the incorporated plants built were not greatly in excess of the municipal, while after that date the rate of construction of municipal works fell far below that of the incorporated water companies. The decade between 1890 and 1900 was the period of maximum activity in municipal control of water works, for during that period 41 per cent. of the total present existing municipal plants were built or acquired.

OWNERSHIP.

Corporate ownership of water works is prevalent in Pennsylvania, there being 455 plants thus owned, as against 133 municipally owned. The relative position of Pennsylvania in this regard, among 15 other States from which information was received, is shown in the following table. It indicates that in 7 of these States there are more municipal than corporate plants, while in 6 States the reverse is true. In Pennsylvania, Connecticut and Rhode Island there are approximately three times as many corporate as municipal works, while in Kansas, Massachusetts, New York and Ohio the number of municipal plants far exceeds the number of corporate systems. It is also to be observed that with the exception of Rhode Island, Pennsylvania has the smallest percentage of municipal works and the largest percentage of corporately owned plants. The total number of municipal plants in these 16 States is 1,206 against 1,016 corporate plants, of which latter Pennsylvania has almost one-half. The table shows that no other State has so large a number of water supply systems as has Pennsylvania, and that while Ohio and New York have more municipally owned plants than Pennsylvania, they have fewer corporate ones.

TABLE NO. 7.

Municipal and Corporate Ownership of Water Works in Various States.

State.	Municipal Plants.		Corporate Plants.		Total number of plants.
	Number.	Percentage.	Number.	Percentage.	
California,	34	47	38	53	72
Connecticut,	16	21	60	79	76
Kansas,	131	86	22	14	153
Massachusetts,	147	77	45	23	192
Michigan,	*100	54	*20	11	*184
New Hampshire,	50	49	52	51	102
New Jersey,	58	35	108	65	166
New York,	289	70	124	30	413
North Carolina,	*36	55	*15	23	†65
Ohio,	168	78	47	22	215
Oregon,	6		Not known		Not known
PENNSYLVANIA,	133	23	455	77	588
Rhode Island,	4	21	15	79	19
South Carolina,	17	53	15	47	32
Vermont,	17		Not known		Not known
Wisconsin,‡					
Total,	1,206	54	1,016	46	2,277

---

*Sixty-four other plants in doubt, but believed to be owned by municipality.
†Fourteen other plants in doubt.
‡About 50 per cent. by each.

There seems to be no general law governing the distribution of municipal and corporately owned water works in this State, some counties having few or none owned by the municipality, and some having many so owned and operated. The table on page 17 shows the number of water works in each county, municipally and corporately owned.

The largest number of municipal plants lie in the counties of Allegheny, Blair, Chester, Crawford, Lancaster, Lehigh and Schuylkill. In most of these counties, however, there are a considerable number of systems, so that the percentage of municipal to the total number of plants is not so large as in some other counties. The map on page ——, prepared for the purpose of showing the percentage of municipal to total plants in each county, indicates that the highest rate of municipal ownership of water systems lies in the northwestern portion of the State; while the largest part of the Commonwealth has below 20 per cent. of such systems. In the anthracite and bituminous coal fields the percentage of municipal ownership of water works is low. There are 19 counties in which there are no municipally owned plants, and 17 in which but one plant is owned by a municipality. In Montour county there is but one plant, which is municipally owned.

Among the larger cities municipally owned water works are more common than among the smaller communities, and the tendency appears to be, as cities increase in size, to acquire the water supply systems.

Of the 571 cities and boroughs which receive public water supplies, 133 or 23 per cent. are served by municipal works, and 438 or 77 per cent. by incorporated companies. (See Table No. 2.)

Of the 30 cities, 16 are supplied by municipally owned works, and 14 by incorporated water companies, as shown by the following table:

TABLE NO. 8.

Ownership of Water Supplies in Pennsylvania Cities.

City.	Population.	Principal Supply System.	Other Systems in Community.
Philadelphia,	1,549,008	Municipal,	Philadelphia and Bristol Water Co., and Springfield Consolidated Water Co.
Pittsburgh,	533,905	Municipal,	Pennsylvania Water Co., South Pittsburgh Water Co., and Monongahela Water Co.
Scranton,	129,867	Scranton Gas and Water Co.,	Spring Brook Water Supply Co.
Reading,	96,071	Municipal,	None.
Wilkes-Barre,	67,105	Spring Brook Water Supply Co.,	None.
Erie,	66,525	Municipal,	None.
Harrisburg,	64,186	Municipal,	None.
Johnstown,	55,482	Johnstown Water Co.,	None.
Altoona,	52,127	Municipal,	Blair Gap Water Supply Co. and Allegheny Water Co.
Allentown,	51,913	Municipal,	None.
Lancaster,	47,227	Municipal,	None.
York,	44,750	York Water Co.,	None.

TABLE NO. 8—Continued.

McKeesport,	42,694	Municipal,	Monongahela Valley Water Co.
Chester,	38,537	New Chester Water Co.,	None.
New Castle,	36,280	City of New Castle Water Co.,	None.
Williamsport,	31,860	Williamsport Water Co., and Citizens' Water and Gas Co., of Williamsport.	None.
Easton,	28,523	Easton Water Co. and Lehigh Water Co.	South Easton Water Co.
Hazleton,	25,452	Hazleton Water Co. and Diamond Water Co.	None.
Lebanon,	19,240	Municipal,	None.
Carbondale,	17,040	Consolidated Water Supply Co.,	None.
Pittston,	16,267	Spring Brook Water Supply Co.,	None.
Oil City,	15,657	Municipal,	None.
Bradford,	14,544	Municipal,	None.
Meadville,	12,780	Municipal,	None.
Franklin,	9,767	Municipal,	None.
Titusville,	8,533	Municipal,	None.
Lock Haven,	7,772	Municipal,	None.
Monongahela,	7,598	Monongahela City Water Co.,	None.
Corry,	5,991	Corry Water Supply Co.,	None.
Parker City,	1,244	Parker City Water Co.,	None.

From the above table it is seen that of the water supplies in 13 cities west of the Allegheny mountains, 8 are municipally owned and 5 are corporately owned, while of the 17 eastern cities 8 own their water works and 9 are supplied by incorporated companies. Of the 12 largest cities 9 are supplied by municipal works.

Incorporated water supply systems operate in municipalities or portions thereof, to a total population of 1,978,001, or 66 per cent. of a population of 2,996,515 supplied by municipally owned plants, but the number of communities supplied by water companies is 438 against 133 supplied by municipal works. Municipal plants, moreover, can supply only one municipality, while a group of communities is often supplied through a single corporately owned plant.

All cities and boroughs have by law, the right to own and operate water supply systems. It has been found that in the majority of instances works owned by municipalities have been built originally by the public although in some cases existing works of water companies or private plants already in the field have been purchased. Thus of the 133 municipally owned water supply systems, 108 were originally built by the municipalities, 22 were purchased from incorporated water companies and 3 from individuals. In only four instances have works been built by the municipality in competition with water companies operating in the borough.

At present several boroughs and cities are negotiating for the purchase of corporately owned water works, and recent legislation has been enacted with the evident intention of facilitating such purchases.

TABLE NO. 9.

List of Municipalities Which Have Purchased Water Works From Incorporated Water Companies.

Name of Municipality.	Date of Purchase.	Company Purchased.
Allentown City, Lehigh Co.,	1865	Allentown Water Co.
Altoona City, Blair Co.,	1872	Altoona Gas and Water Co.
Boyertown Borough, Berks Co.,	1902	Boyertown Water Co.
Bradford City, McKean Co.,	1882	Bradford Water Works Co.
Dubois Borough, Clearfield Co.,	1896	Dubois City Water Works Co.
Ephrata Borough, Lancaster Co.,	1906	Ephrata Water Co.
Evans City Borough, Butler Co.,	1898	Evans City Water Co.
Franklin City, Venango Co.,	1908	Venango Water Co.
Harrisburg City, Dauphin Co.,	1847	Harrisburg Water Co.
Kennett Square Borough, Chester Co.,	1850	Pure Spring Water Co. of Kennett Sq.
Laceyville Borough, Wyoming Co.,	1905	Citizens' Water of Laceyville.
Lancaster City, Lancaster Co.,	------------	Lancaster Borough Water Co.
Lititz Borough, Lancaster Co.,	1906	Lititz Water Co.
Malvern Borough, Chester Co.,	1890	Malvern Water Co.
Meadville City, Crawford Co.,	1898	Meadville Water Co.
Oxford Borough, Chester Co.,	1872	Oxford Gas and Water Co.
Reading City, Berks Co.,	1865	Reading Water Co.
Slatington Borough, Lehigh Co.,	1883	Slatington Water Co.
South Renova Borough, Clinton Co.	1907	South Renovo Water Co.
Steelton Borough, Dauphin Co.,	1899	Steelton Home Water Co.
Strasburg Borough, Lancaster Co.,	1898	Strasburg Water Co.
Troy Borough, Bradford Co.,	1902	Troy Water Co. of Troy, Bradford Co., Pa.

There have been two instances of municipalities selling their water works to private plants. The works built by the borough of St. Petersburg, Clarion county, in 1872, were operated by it until 1882, and on September 5th of that year letters patent were issued to the St. Petersburg Water Company, the incorporators of which consisted in the borough councilmen, the stock of the company being owned by the borough. The St. Petersburg Water Company took over and is operating the original water works built by the municipality. In the City of Chester, Delaware county, the first supply of water was furnished by the South Ward Water Works, the plant having been built in 1867. This was a municipal supply covering that part of the city comprising the South Ward, and the plant was purchased by the New Chester Water Company in 1887.

In two cases partial leases or financial agreements have been made by municipalities owning water works with companies or individuals to assist in the operation of the plant. Thus at Lancaster the city owns the water works, with the exception of the filtration plant, which is owned and operated by the Pennsylvania Maignen Filtration Company, of Philadelphia, the city paying the company for the water filtered. At Dawson, Fayette county, the water works were originally installed by the borough, and in 1902 the borough leased the plant for 10 years to A. C. McCune, who operates it, 25 per cent. of the receipts going to the borough. At Cresson Borough, Cambria county, and at Girardville, Schuylkill county, the municipality contracts with a water company for a supply of water from its mains, the borough owning only the distributing pipe lines within the town. There is one case of combined ownership of water works, that being at Carlisle, Cumberland county, where the plant was built by the Carlisle Gas and Water Company, the borough subscribing for 50 per cent. of the stock.

A number of instances exist of municipalities being supplied by both incorporated companies and municipal plants. In four instances water companies were in the field before the municipal works were built, while in others this condition was brought about through the annexation by a municipality of territory in which a water company was operating. Under these conditions the municipality serves one section of the city while the water company serves another, but usually the relations existing between the two are not harmonious, and the service is often thus impaired. As shown in the following table, the municipal supply predominates in every case but one, and the water company operates in outlying sections or in restricted districts.

TABLE NO. 10.

Municipalities Served With Water by Both Municipal and Private Works.

Municipality.	Population.	Water Company.	Population.	
			Served by Co.	Served by municipality.
Altoona, Blair Co.,	52,127	Allegheny Water Co.,	500	Remainder.
Austin, Potter Co.,	3,000	Lumber City Water Co.,	700	2,000
Bethlehem, Northampton Co.	12,837	Bethlehem City Water Co.	4,000 W. Bethlehem,	8,000 Bethlehem.
Centre Hall, Centre Co.,	500	Centre Hall Water Co.,	25	475
Cresson, Cambria Co.,	1,500	Cresson Water Co.,	500	400
		Rebecca Water Co.,	60	
McKeesport, Allegheny Co,	42,694	Monongahela Valley Water Co.	2,000	40,000
Emaus, Lehigh Co.,	3,501	Mountain Water Co.,	800	2,200
Hastings, Cambria Co.,	2,125	Hastings Water Co.,	20 per cent.	40 per cent.
Philadelphia,	1,549,008	Philadelphia and Bristol Water Co.	25,000	Remainder.
		Springfield Consolidated Water Co.	Oak Lane.	
Pittsburgh, Allegheny Co.,	533,905	Monongahela Water Co.,	10,000	
		Pennsylvania Water Co.,	11,000	Remainder.
		South Pittsburgh Water Co.	15,000	
Shenandoah, Schuylkill Co.	25,774	Shenandoah Citizens' Water and Gas Co.	25 per cent.	75 per cent.

The Act of July 9th, 1901 (P. L. 627), gives townships of the first class, those having a population of 300 per square mile or over, the right to build, own and operate water works just as do cities and boroughs. One such plant is in operation in the Commonwealth, that being in West Lebanon township, Lebanon county, the population there supplied being 550.

Cities, boroughs and both first and second class townships have the right to contract with water companies for the supply of water for fire protection. The Act giving second class townships the right to contract with water companies for fire protection will be of considerable assistance to water companies supplying unincorporated villages in second class townships, as the rent for fire hydrants will aid in putting such works on a sound financial basis. It will also benefit these small towns by making it more profitable to supply them and thus encourage the construction of water works, reducing insurance and encouraging industries.

UNINCORPORATED WATER SUPPLY SYSTEMS.

The status of the 167 unincorporated water supply systems which are owned by partnerships, individuals or by corporations other than water companies have received the attention of the Commission in order that their condition and legal position may be determined. Certain classes of industrial corporations have the right to deflect water from flowing streams for use in the industrial process, but the law does not recognize their right to supply water for domestic consumption, and it requires that water deflected by such companies be returned to the same stream from which it is taken, in equal quantity and quality, within the limits of the property of the corporation so deflecting it. It is recognized, however, that the practice is quite widespread of industrial companies supplying the houses of their employes, and where such supply is essential, in accordance with the opinion of the Commission, no objections have been raised. It is to be desired, however, that the Legislature legalize this practice, requiring such companies to make application to this Commission before the legislation recommended would become applicable.

The supply of water to the public by partnerships and individuals does not seem to be covered by statute, although it may be that such supply of water pumped from wells would be permissible; that from flowing streams, however, is not within the law. An individual, although having the right to take water from a stream upon which his property abuts, for his own use, may not sell it to others, and he cannot contract with a municipality for the laying of pipes in the streets and supplying water thereby. The knowledge of the existence of such systems is difficult to obtain, for there is no official record of them, as in the case of incorporated water companies, and the owners of such plants are often irresponsible parties and liable to endanger property and health without proper supervision. The systematic examination just concluded by this Commission has disclosed, as above stated, 167 private, unincorporated water plants, many of which belong to the class discussed above. On account of the fact that these unincorporated supplies are a comparatively insig-

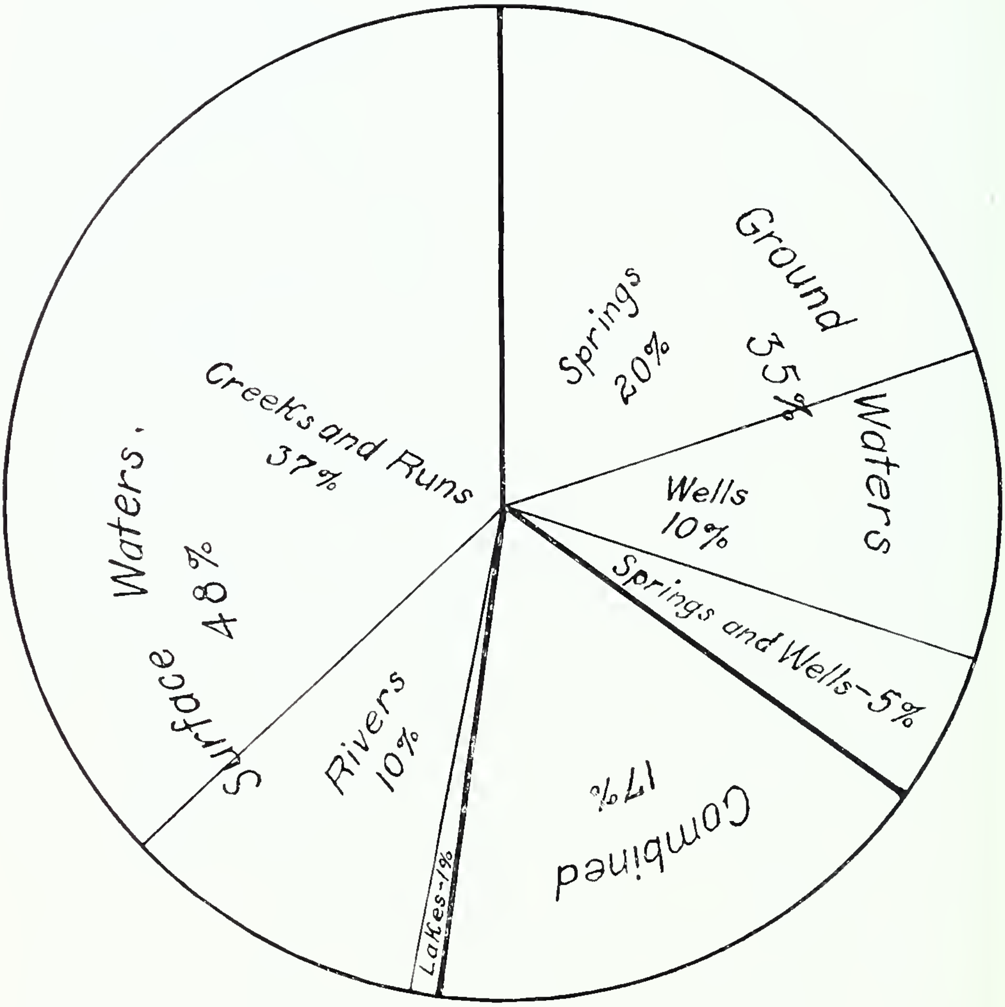

Diagram
showing the
Proportional Use of
Surface, Ground and Combined Waters

nificant feature of the water supply of the State, that the percentage of the total population served by such works is small, and that the sources of supply used are unimportant, they have been omitted from further discussion in this chapter.

COMPARATIVE USE OF GROUND AND SURFACE WATER.

Of the 588 municipal and incorporated water supply systems, 280 or 47 per cent. use flowing streams, lakes or ponds as the source of supply, 213, or 37 per cent. use ground water supplies, and 95, or 16 per cent. use a combination of ground and surface water, as shown in the following table. The practice is not unusual of reinforcing surface supplies by pumping from drilled wells, and such reinforcements have proved of much value during seasons of drought. There are 46 supplies whose main source is from surface waters, which are reinforced by drilled wells. The larger municipalities are usually supplied from flowing streams, springs being as a rule too small to form a practicable source.

The following table indicates the source of supply, whether from ground or surface water, of the 588 municipal and incorporated water supply plants in the Commonwealth.

TABLE NO. 11.

Source of Supply of Municipal and Corporated Water Works.

Source.	Municipal.	Water companies.	Total.
SURFACE WATERS:			
Rivers,	15	39	54
Creeks and runs,	38	181	219
Lakes,	1	4	5
Lakes and streams,	0	2	2
Total,	54	226	280
GROUND WATERS:			
Springs,	24	90	114
Wells,	21	36	57
Springs and wells,	10	24	34
Total,	55	150	205
COMBINED SURFACE AND GROUND WATERS:			
Dug or drilled wells in or along rivers,	9	8	17
Streams and springs,	10	34	44
Streams and wells,	3	21	24
Springs, streams and wells,	2	14	16
Well and Lake,	0	1	1
Spring and Lake,	0	1	1
Total,	24	79	103
Grand total,	133	455	588

SURFACE WATER SUPPLIES.

Water is taken from the large rivers directly by both municipal and incorporated water works, the Delaware supplying Philadelphia, Easton, Morrisville, Chester and Bristol; the Schuylkill, Philadelphia, Norristown, Pottstown and Phoenixville; the Lehigh, South Bethlehem; the Susquehanna, Columbia, Steelton, Harrisburg, Sunbury, Danville and Sayre; the Ohio, Coraopolis, Sewickley, Edgeworth, Colonia, Midland and Monaca; the Allegheny, Pittsburgh, Millvale, Etna, Wilkinsburg, Edgewood, Swissvale, North Braddock, East Pittsburgh, Turtle Creek, Wilmerding, Pitcairn, Oakmont, Verona, Tarentum, Brackenridge, Parnasus. New Kensington, Arnold, Freeport, Kittanning, Parker City and Warren; the Kiskiminetas and Conemaugh, Saltsburg and Blairsville; the Monongahela, Mt. Oliver, Martook, Belthoover, West Liberty, Esplen, Sheraden, Ingram, Crafton, Greentree, Carnegie, Carrick, Homestead, McKeesport, Clairton, Elizabeth, West Elizabeth, Monessen, Belle Vernon, North Belle Vernon, Monongahela City, Donora, Charleroi, California and Brownsville; the Youghiogheny, McKeesport and Connellsville; the Cheat, Point Marion; the Beaver, Conway, Freedom, Rochester, West Bridgewater, Fallston, New Brighton, Patterson Heights, Beaver Falls, Eastvale and College Hill; the Shenango, New Castle, Sharon and South Sharon. The Juniata, Genesee, Lackawanna, Lackawaxen, Chemung, Casselman, Cowanasque, Tioga and Mahoning rivers are not being used directly, although in almost every case certain of their tributaries are, while few of the larger secondary streams are unused.

The large rivers afford in general ample supplies, and the communities so served seldom have been in want of sufficient water even during the most extreme periods of drought. The quality of such supplies is, however, not as a rule desirable, and some form of purification is required before it is fitted for domestic use. Of the 15 municipalities served with water from the Delaware, Schuylkill, Lehigh and Susquehanna rivers, 12 purify the supply by one of the recognized processes of filtration, while of the 70 municipalities using water from the Ohio, Monongahela, Youghiogheny, Cheat, Allegheny, Kiskiminetas, Conemaugh, Beaver and Shenango, 44 use a recognized filtration process, 21 use filter cribs, and 5 use the water in its natural state. Thus but 8 towns out of 85 are supplied with raw water from the large rivers.

The western rivers are more used than those in the east both by municipalities for public purposes and by mills and industrial plants, while at the same time their quality is more impaired by domestic and trades wastes and the quantity available per square mile of drainage area is in most cases less.

The use of secondary streams and small creeks is more general than any other source of supply, 219 systems deriving their supply from such source, while combined with springs or wells 84 systems are so supplied. Supplies so derived are, however, the most subject to shortage during drought, with the exception of springs, and as shown above, are often assisted by additional sources or by impounding.

Natural lakes and ponds afford the total supply to only 5 systems, while 4 lakes, combined with springs, streams or wells are so employed.

Although in the northeastern part of the State there are many lakes which would afford water in ample quantity and good quality, the population in their vicinity is so meagre as not to require their use, and to carry the water to the more populous districts would require excessive expenditure. During the summer season the shores of many lakes become thickly populated and such lakes are often used by private water works for supplying summer hotels, boarding houses, and cottages. Natural lakes, in certain instances, which lie at or near the source of streams used for supply purposes, have been dammed at their outlets to afford storage, or to form pools from which ice is harvested, and thus serve a most useful purpose in maintaining dry weather flow.

GROUND WATER SUPPLIES.

Fewer towns are supplied from springs and wells than from flowing streams, and they are generally smaller than those receiving surface water supplies.

Spring supplies are scattered broadcast over the State, but are often found in conjunction with another source. Spring water, although to be desired, and most satisfactory, requires care and protection, and such supplies are among the worst sufferers in time of drought, so that experience has led to their reinforcement in many instances. There are 114 supplies derived from springs alone and 96 derived from springs, reinforced in some manner, either with surface water or drilled wells. The smaller communities are generally supplied by springs, from which an adequate supply can often be obtained, but as the town grows, the springs prove inadequate and another source is required.

The largest municipalities supplied by springs are Allentown, population of 51,913, Bellefonte, population of 4,145, Towanda, population of 4,281, Slatington, population of 4,454, and Hawley, population of 2,018. There are no other municipalities, whose population exceeds 2,000, which obtain their entire water supply from springs. Of the 126 water companies incorporated with the approval of the Commission, between June, 1905 and December 31, 1909, 33 were designed to obtain their supply from springs or springs with some reinforcement.

Drilled wells are both usual and generally satisfactory as sources of supply in this State, and, as shown by Table No. 11, 57 systems derive their supply from wells alone and 75 from wells in combination with some other source. In some sections they have proved unsuccessful, while in others they are abundant, depending upon the amount and character of the ground water, the depth at which sufficient water can be found, and the character of the underlying strata. In certain districts wells have proved unsatisfactory because of coal, oil or other minerals, found above the water bearing strata.

The following table shows the distribution by counties of water works deriving their supply from drilled wells alone or combined with some other source.

TABLE NO. 12.

Distribution of Water Supplies Derived from Drilled Wells Alone or Combined With Another Source.

County.	Number of supplies derived from drilled wells alone.	Number of supplies derived from drilled wells combined with some other source.	Total.
Adams,	0	1	1
Allegheny,	5	0	5
Armstrong,	1	0	1
Beaver,	1	1	2
Bedford,	0	2	2
Berks,	0	2	2
Blair,	0	0	0
Bradford,	0	1	1
Bucks,	2	1	3
Butler,	2	1	3
Cambria,	0	4	4
Cameron,	0	0	0
Carbon,	0	4	4
Center,	0	0	0
Chester,	3	1	4
Clarion,	4	2	6
Clearfield,	2	0	2
Clinton,	0	0	0
Columbia,	1	1	2
Crawford,	0	1	1
Cumberland,	1	0	1
Dauphin,	0	1	1
Delaware,	0	0	0
Elk,	0	1	1
Erie,	1	0	1
Fayette,	1	1	2
Forest,	0	0	0
Franklin,	2	0	2
Fulton,	0	0	0
Greene,	0	1	1
Huntingdon,	0	0	0
Indiana,	1	2	3
Jefferson,	0	2	2
Juniata,	0	0	0
Lackawanna,	0	3	3
Lancaster,	2	2	4
Lawrence,	0	1	1
Lebanon,	3	3	6
Lehigh,	0	2	2
Luzerne,	4	5	9
Lycoming,	2	1	3

TABLE NO. 12—Continued.

County.	Number of supplies derived from drilled wells alone.	Number of supplies derived from drilled wells combined with some other source.	Total.
McKean,	0	3	3
Mercer,	2	0	2
Mifflin,	0	0	0
Monroe,	0	0	0
Montgomery,	4	1	5
Montour,	0	0	0
Northampton,	0	4	4
Northumberland,	0	2	2
Perry,	0	0	0
Philadelphia,	0	0	0
Pike,	0	0	0
Potter,	0	2	2
Schuylkill,	2	2	4
Snyder,	0	0	0
Somerset,	3	2	5
Sullivan,	0	1	1
Susquehanna,	0	1	1
Tioga,	0	2	2
Union,	0	0	0
Venango,	1	3	4
Warren,	0	2	2
Washington,	0	1	1
Wayne,	0	0	0
Westmoreland,	3	0	3
Wyoming,	0	2	2
York,	4	0	4
Total,	57	75	132

Drilled wells are used for sources of water supply largely owing to the existence of conditions which are characteristic of this State. In the southeastern counties drilled wells are numerous, their use being probably due to the shortage of available surface water, and to its pollution, resulting from the dense population, high state of agricultural development and reduced forest cover. In the anthracite coal counties wells have come into wide use on account of the large requirements for water by the coal mines, and the dense population surrounding them, which has resulted in the use of practically all of the available surface water. Below their extreme headwaters most of the streams in this region are so injured by coal waste as to render them unfit for use, so that the surface supply is small, where the demand for water is the greatest, hence wells have become widely used, being generally drilled outside of the coal measures.

In the oil, bituminous coal and gas producing counties, the use of drilled wells is quite prevalent, the number of supplies so derived in the ten oil and gas producing counties being 26 out of a total in the State of 119. It is not believed that this is due so much to the lack of surface water or to the abundance of ground water as it is to the familiarity of the inhabitants with well drilling, for water is usually struck in drilling for oil, and can generally be found at a known depth and in quantity. It does not seem, however, that there is reason to believe the ground water supply to be any more abundant in these regions than in other parts of the State, where drilled wells are scarcely known. Drilled wells are valuable as auxiliary supplies and are so used in 75 instances, pumping from them being resorted to when streams and springs prove inadequate. The largest number of supplies derived from drilled wells alone or combined is in Luzerne county, followed by Lebanon and Clarion counties.

In the western part of the State a common practice has been to bore wells of large diameter along the banks or in the bed of rivers or large streams. Where the banks are of gravel or other pervious material, water from the stream readily filters into these wells, and a considerable quantity may usually be obtained therefrom, but the more perfect the filtration the greater is the risk of the well failing as the filtering material becomes clogged. Works of this kind are found in Allegheny county operated by Braddock borough, Duquesne borough, Homestead borough, Sharpsburg borough, the Monongahela Water Company and the Ohio Valley Water Company; in Beaver county by Aliquippa borough, Beaver borough, the Harmony Water Company and the Woodlawn Water Company; in Butler county by Baden and Mars boroughs; in Armstrong county by Ford City borough; in Crawford county by Meadville and Titusville cities; in Fayette county by the Fayette City Water Co.; in Venango county, by Franklin and Oil cities; in Warren county by the Warren Water Company; in McKean county by Bradford city; and in Lycoming county by the Williamsport Water Company. There are, in all, 20 such plants in the State, all but one of which lie in the extreme western part thereof. Water so derived is of doubtful origin, in some cases drawn from the river and probably in others from the bordering hills, or as is usually the case, partially from both. If drawn from the river the water so obtained is usually superior in quality to the raw river water, and the supply from such wells is usually in good volume.

The following table shows the sources of supply of municipalities having populations exceeding 10,000.

TABLE NO. 13.

Source of Supply of Municipalities Having Populations Exceeding 10,000.

Name.	Supplied By	Source of Supply.
Philadelhpia City, Philadelphia Co.,	Municipality,	Delaware and Schuylkill rivers.
Pittsburgh City, Allegheny Co.,	Municipality,	Allegheny river.
Scranton City, Lackawanna Co.,	Scranton Gas and Water Co.,	Tributaries of Lackawanna river and Lehigh river.
Reading City, Berks Co.,	Municipality,	Maiden creek, Antietam creek, Bernhardt creek, Egleman creek and springs.
Erie City, Erie Co.,	Municipality,	Lake Erie.
Wilkes-Barre City, Luzerne Co.,	Spring Brook Water Supply Co.,	North Br. Susquehanna river and tributaries.
Harrisburg City, Dauphin Co.,	Municipality,	Susquehanna river.
Lancaster City, Lancaster Co.,	Municipality,	Conestoga creek.
Altoona City, Blair Co.,	Municipality,	Burgoon, Scotch and McGarvey runs.
Johnstown City, Cambria Co.,	Johnstown Water Co.,	Mill creek, Dalton, St. Clair, Laurel, Wild Cat and Salt Lick runs.
Allentown City, Lehigh Co.,	Municipality,	Springs.
McKeesport City, Allegheny Co.,	Municipality,	Youghiogheny river.
Chester City, Delaware Co.,	New Chester Water Co.,	Delaware river.
York City, York Co.,	York Water Co.,	Codorus creek.
Williamsport City, Lycoming Co.,	Williamsport Water Co. and Citizens' Water and Gas Co. of Williamsport.	Mosquitoe creek, Haegermans run and dug wells.
New Castle City, Lawrence Co.,	City of Newcastle Water Co.,	Shenango river.
Easton City, Northampton Co.,	Lehigh Water Co. and Easton Water Co.,	Springs and Delaware river.
Norristown Borough, Montgomery Co.,	Norristown Insurance and Water Co.,	Schuylkill river.
Shenandoah Borough, Schuylkill Co.,	Municipality and Shenandoah Citizens Water and Gas Co.	Keahley run, Fowler run, Bairds run Cold Spring, Davis run and Girard Water Co.
Shamokin Borough. Northumberland Co.,	Roaring Creek Water Co.,	Roaring creek, Trout and Eagle runs.
Lebanon City, Lebanon Co.,	Municipality,	Hammer creek and tributaries, and tributary of Cocalico creek.
Pottsville Borough, Schuylkill Co.,	Pottsville Water Co.,	Kauffman run, Eisenhuth run, Wolf creek and Indian run.
Braddock Borough, Allegheny Co.,	Municipality,	Monongahela river and drilled wells.
Bradford City, McKean Co.,	Municipality,	Marilla creek and drilled wells.
Hazleton City, Luzerne Co.,	Hazleton Water Co. and Diamond Water Co. of Hazleton.	Catawissa creek, drilled wells, Boyds run and Quakake creek.
Pottstown Borough, Montgomery Co.,	Pottstown Gas and Water Co.,	Schuylkill river.
Plymouth Borough, Luzerne Co.,	Spring Brook Water Supply Co.,	North Br. Susquehanna river and tributaries.

TABLE NO. 13—Continued.

Name.	Source of Supply.	Supplied by.
Carbondale City, Lackawanna Co.,	Consolidated Water Supply Co.,	Tributaries of Lackawanna river.
Mahanoy City Borough, Schuylkill Co.,	Mahanoy City Water Co.,	Messers, Negro Hollow, Coal and Pole runs.
Oil City, Venango Co.,	Municipality.	Drilled wells and springs.
South Bethlehem Borough, Northampton Co.,	Bethlehem City Water Co.,	Lehigh river.
Mt. Carmel Borough, Northumberland Co.,	Mt. Carmel Water Co.,	Springs and wells.
Dunmore Borough, Lackawanna Co.,	Scranton Gas and Water Co.,	Tributaries of Lackawanna river and Lehigh river.
Pittston City, Luzerne Co.,	Spring Brook Water Supply Co.,	North Br. Susquehanna river and tributaries.
Homestead Borough, Allegheny Co.,	Municipality.	Monongahela river and drilled wells.
Columbia Borough, Lancaster Co.,	Columbia Water Co.,	Susquehanna river.
Nanticoke Borough, Luzerne Co.,	Spring Brook Water Supply Co.,	North Br. Susquehanna river and tributaries.
Steelton Borough, Dauphin Co.,	Municipality,	Susquehanna river.
Wilkinsburg Borough, Allegheny Co.,	Pennsylvania Water Co..	Allegheny river.
Butler Boro., Butler Co.,	Butler Water Co.,	Connoquenessing creek and Thorn run.
Meadville City, Crawford Co.,	Municipality,	Drilled wells.
Beaver Falls Borough, Beaver Co.,	Beaver Valley Water Co..	Beaver river.

GRAVITY AND PUMPING SUPPIES.

The most economical form of water supply, as far as operation and maintenance are concerned, is naturally a gravity system, and that form is usually installed if its first cost is not too great. Most small towns have gravity supplies, and many would be without public systems were such sources not available. Larger towns can afford the additional operating expense necessary for a pumping plant. Of the 588 water works systems considered in this discussion, 248 are entirely gravity supplies, 243 are entirely pumping and 97 are combined, gravity and pumping, that is, there are two or more sources of supply, from one of which the water flows to the consumers entirely unaided, and from another it is necessary to raise the water by pumps to obtain the requisite pressure.

Owing to the varying topographic and hydrographic conditions, the use of gravity and pumping plants varies in different sections, the former prevailing in the more mountainous parts.

The following table shows by counties the distribution of gravity and pumping supplies:

TABLE NO. 14.

Distribution by Counties of Gravity and Pumping Supplies.

County.	Number of gravity supplies.	Number of pumping supplies.	Number of combined supplies.	Total number supplies in county.
Adams,	3	3	1	7
Allegheny,	1	25	1	27
Armstrong,	1	6	1	8
Beaver,	0	9	1	10
Bedford,	3	1	1	5
Berks,	12	4	3	19
Blair,	15	1	0	16
Bradford,	4	1	1	6
Bucks,	2	8	0	10
Butler,	0	6	0	6
Cambria,	21	6	4	31
Cameron,	1	0	1	2
Carbon,	7	2	1	10
Centre,	18	1	0	19
Chester,	3	8	2	13
Clarion,	0	4	2	6
Clearfield,	6	2	1	9
Clinton,	7	0	0	7
Columbia,	1	3	2	6
Crawford,	1	4	1	6
Cumberland,	3	3	0	6
Dauphin,	7	6	1	14
Delaware,	0	2	0	2
Elk,	0	3	1	4
Erie,	1	3	2	6
Fayette,	4	10	2	16
Forrest,	1	0	0	1
Franklin,	4	3	1	8
Fulton,	1	0	0	1
Greene,	0	1	0	1

TABLE NO. 14—Continued.

County.	Numbr of gravity supplies.	Number pumping supplies.	Number of combined supplies.	Total number supplies in county.
Huntingdon,	4	1	0	5
Indiana,	3	8	2	13
Jefferson,	1	4	1	6
Juniata,	2	0	0	2
Lackawanna,	6	1	2	9
Lancaster,	5	9	1	15
Lawrence,	1	3	1	5
Lebanon,	5	4	3	12
Lehigh,	4	1	2	7
Luzerne,	7	5	4	16
Lycoming,	1	2	4	7
McKean,	2	2	3	7
Mercer,	1	5	2	8
Mifflin,	2	0	0	2
Monroe,	3	5	3	11
Montgomery,	1	10	1	12
Montour,	0	1	0	1
Northampton,	8	3	1	12
Northumberland,	2	3	2	7
Perry,	4	0	2	6
Philadelphia,	0	2	0	2
Pike,	2	1	0	3
Potter,	4	1	3	8
Schuylkill,	17	10	7	34
Snyder,	3	1	0	4
Somerset,	2	4	4	10
Sullivan,	1	1	0	2
Susquehanna,	2	1	3	6
Tioga,	5	0	3	8
Union,	3	0	0	3
Venango,	0	2	5	7
Warren,	2	0	1	3
Washington,	0	11	0	11
Wayne,	3	0	0	3
Westmoreland,	10	10	3	23
Wyoming,	2	0	3	5
York,	3	7	1	11
Total,	248	243	97	588

PURIFICATION.

Filtration has become widely adopted for the purification of water for municipal use in Pennsylvania. It is a relatively expensive process, usually involving pumping, often a chemical coagulant, and always one or more operatives, thus, as a rule, only the larger communities can afford it. Filtration is applied entirely to surface supplies, as shown by the fact that all of the 53 systems in Pennsylvania using filtration employ surface sources. The two largest cities, Philadelphia and Pittsburgh, employ filtration, recently installed, while between these cities and the small village of St. Benedict, Cambria county, population 800, are municipalities so equipped.

Both the mechanical, and slow sand processes are used, the latter system being generally the more costly of installation, and the former more frequently employed. The total population served with filtered water is 2,651,350 equal to 34.6 per cent. of the population of the State. The total capacity of filters is 671,600,000 gallons per twenty-four hours. Of this amount 510,600,000 gallons is contained in eight slow sand filter plants, the installations at Philadelphia and Pittsburgh alone having a capacity of 487,000,000 gallons.

The following table shows the municipalities supplied with filtered water, the style of filters, the ownership of water works, capacity of filters and average daily consumption, indicating that 44 of the 56 installations are owned by incorporated water companies, and only 12 by municipalities.

TABLE NO. 15.

Filtered Supplies.

Name.	Population supplied.	Ownership.	Type.	Capacity of plant, gallons per 24 hours.	Average daily consumption, gallons per 24 hours.
Allegheny Valley Water Co.,	14,000	Water company,	Mechanical,	3,000,000	2,225,000
Apollo & Leechburg Water Works Co.,	5,500	Water company,	Slow Sand,	1,500,000	300,000
Armstrong Water Company,	7,500	Water company,	Mechanical,	1,500,000	1,300,000
Beaver Valley Water Company,	30,000	Water company,	Mechanical,	6,500,000	3,400,000
Bethlehem City Water Company,	20,000	Water company,	Slow Sand,	4,000,000	3,000,000
Bristol Water Company,	3,550	Water company,	Mechanical,	2,000,000	1,300,000
Butler Water Company,	17,000	Water company,	Mechanical,	5,000,000	3,000,000
Cambridge Springs,	1,600	Municipal,	Mechanical,	500,000	105,000
Carlisle Gas & Water Company,	11,000	Water company,	Mechanical,	1,500,000	1,000,000
Citizens Water Company (Canton Borough),	1,500	Water company,	Mechanical,	400,000	250,000
Citizens Water Company of New Bethlehem,	1,500	Water company,	Mechanical,	100,000	80,000
Citizens Water Company of Washington, Pa.,	10,000	Water company,	Mechanical.	3,000,000	1,000,000
City of New Castle Water Company,	40,000	Water company,	Mechanical,	6,000,000	3,600,000
Clarion Water Company,	3,000	Water company,	Mechanical,	500,000	250,000
Clymer Water Company of Indiana,	5,000	Water company,	Mechanical,	1,000,000	275,000
Columbia Water Company,	10,000	Water company,	Mechanical,	2,000,000	800,000
Connellsville Water Company,	13,000	Water company,	Mechanical,	2,250,000	1,675,000
Danville,	7,000	Municipal,	Mechanical,	1,500,000	800,000
Dauphin Consolidated Water Co.,	1,500	Water company,	Mechanical,	200,000	150,000
Franklin,	9,000	Municipal,	Mechanical,	2,000,000	1,300,000
Freeport Water Works Company,	2,300	Water company,	Mechanical,	1,000,000	100,000
Gettysburg Water Company,	3,500	Water company,	Mechanical,	250,000	300,000
Harrisburg,	60,000	Municipal,	Mechanical,	12,000,000	10,500,000
Home Water Company,	5,000	Water company,	Mechanical,	1,000,000	300,000
Huntingdon Water Supply Company,	6,000	Water company,	Slow Sand,	600,000	900,000
Lancaster,	45,000	Municipal,	Slow Sand,	9,000,000	6,500,000
McKeesport,	40,000	Municipal,	Mechanical,	6,000,000	4,000,000

Mechanicsburg Gas & Water Company,	3,500	Water company,	Mechanical,	500,000	150,000
Media,	4,000	Municipal,	Mechanical,	2,000,000	1,000,000
Monessen Water Company,	11,000	Water company,	Mechanical,	2,000,000	1,400,000
Monongahela City Water Company,	4,000	Water company,	Mechanical,	3,000,000	500,000
Monongahela Valley Water Company,	14,000	Water company,	Mechanical,	2,250,000	1,500,000
New Chester Water Company,	36,000	Water company,	Mechanical,	8,000,000	3,100,000
Newport Home Water Company,	1,500	Water company,	Mechanical,	250,000	120,000
Norristown Insurance & Water Co.,	25,000	Water company,	Mechanical,	8,500,000	2,000,000
Northeast,	2,600	Municipal,	Mechanical,	500,000	350,000
Pennsylvania Water Company,	70,000	Water company,	Mechanical,	10,000,000	7,600,000
Philadelphia & Bristol Water Co.,	25,000	Water company,	Mechanical,	3,000,000	2,000,000
Philadelphia,	1,500,000	Municipal,	Slow Sand,	382,000,000	323,000 000
Pittsburgh,	500,000	Municipal,	Slow Sand,	105,000,000	82,000,000
Pottstown Gas & Water Company,	15,000	Water company,	Mechanical,	4,000,000	1,500,000
Reading,	93,500	Municipal,	Slow Sand,	4,000,000	12,000,000
Ridgway,	5,000	Municipal,	Mechanical,	1,000,000	750,000
Sayre Water Company,	10,500	Water company,	Mechanical,	3,000,000	1,500,000
Sharon Water Works Company,	20,000	Water company,	Mechanical,	4,000,000	1,700,000
South Pittsburgh Water Company.	100,000	Water company,	Mechanical,	14,000,000	6,900,000
Spring Brook Water Supply Company,	234,000	Water company,	Mechanical,	10,000,000	43,000,000
Springfield Consolidated Water Company,		Water company,	Mechanical and slow sand,	11,500,000	5,000,000
Saint Benedict Water Company,	800	Water company,	Mechanical,	100,000	50,000
Steelton,	12,000	Municipal,	Slow Sand,	3,000,000	1,700,000
Sunbury Water Company,	13,000	Water company,	Mechanical,	4,000,000	3,500,000
Vandergrift Water Company,	8,000	Water company,	Mechanical,	1,500,000	600,000
Warren Water Company,	10,000	Water company,	Mechanical,	3,000,000	1,300,000
Waynesburg Water Company,	3,500	Water company,	Mechanical,	1,000,000	80,000
West Reading Water Company.	2,000	Water company,	Mechanical,	200,000	100,000
York Water Company,	50,000	Water company,	Mechanical,	6,000,000	3,000,000
Total,	2,651,350			671,600,000	

In a considerable number of instances, especially in the western part of the State, where supplies are taken from rivers, and filter plants have been deemed inexpedient because of the high cost of installation and maintenance, partial filtration has been attempted through the installation of filter cribs, which are common along the Ohio, Allegheny and Monongahela rivers, as is shown in the following table, indicating the location of such installations.

TABLE NO. 16.

Location of Filter Cribs.

Stream.	County.	Ownership.	Remarks.
Ohio river,	Allegheny,	Monongahela Water Co.,	Partial supply.
Ohio river,	Allegheny,	Coraopolis borough,	
Ohio river,	Allegheny,	Sewickley borough,	
Ohio river,	Allegheny,	Edgeworth Water Co.,	
Ohio river,	Beaver,	Monaca borough,	
Allegheny river,	Allegheny,	Etna borough,	
Allegheny river,	Allegheny,	Millvale borough,	
Allegheny river,	Allegheny,	Suburban Water Co. of Allegheny Co.	
Allegheny river,	Armstrong,	Parker City Water Co.,	
Allegheny river,	Venango,	Emlenton Water Co.,	Partial supply.
Allegheny river,	Venango,	Siverly Water Company,	Filter well.
Allegheny river,	Westmoreland,	Kensington Water Co.,	
Monongahela river,	Fayette,	Brownsville Water Co.,	
Monongahela river,	Washington,	Charleroi Water Co.,	
Monongahela river,	Washington,	Donora Water Company,	
Shenango river,	Mercer,	Sharpsville borough,	Filter well.
Otter creek,	Mercer,	Mercer Water Company,	Filter well.
Mickle run,	Tioga,	Wellsboro Water Co.,	Auxiliary supply.
No. Br. Red Bank creek,	Jefferson,	Brookville Water Co.,	
W. Br. Susquehanna river,	Lycoming,	Muncy Water Supply Co.,	Auxiliary supply.
Fishing creek,	Columbia,	Bloomsburg Water Co.,	

CONSUMPTION.

The question of the per capita consumption of water is one of vast importance to the public, as well as to water companies and municipalities, and the Commission obtained data relative to this wherever it was available. Such data are not often available, for the reason that where the supply comes entirely by gravity there is often no means of measurement, and where the supply is pumped, it frequently happens that careful methods of computation of pumpage are lacking. However, there are many municipalities for which the figures may be considered fairly reliable, and the tables and conclusions below are based upon such records, which are more likely to show the per capita consumption too large than too small.

There is a tendency to greater prodigality in the use of water delivered by gravity than in what is pumped. So long as the source of supply remains adequate, little attempt is made on the part of the management to curtail consumption, for it costs no more to deliver 2,000,000 gallons than 1,000,000, if pipe lines and distributing reservoirs are of sufficient size, and there is little reason for restricting consumption. However, this practice accustoms consumers to habits of prodigality and waste, so that if weather conditions, increased population, additional industrial use or other elements cause consumption and supply to approach closely, and restrictions become necessary, it is difficult to bring consumers to appreciate the necessity therefor and to co-operate in bringing them about. The sale of water by measurement, where the supply is a gravity one, except to large industrial consumers, is infrequent. The usual practice, even with pumped service, except in the larger cities, is to charge a flat rate, based on the number and kind of openings in the house, and having no necessary relation to the amount of water used.

The best practice in water distribution, except in cases of an abundant gravity supply, is a complete installation of meters for both domestic and industrial services. Unfortunately metered service is uncommon, the largest cities in the Commonwealth using generally the flat rate system. In a considerable number of plants, however, the industrial supply is metered and the domestic consumption calculated on a flat rate basis. It has been found very difficult to meter a service after the consumers have been accustomed to a flat rate. Being used to an extravagant supply of water consumers find it hard to limit themselves at once to a reasonable consumption. Although undoubtedly the best way, it has been found that few systems have installed meters when the works were built, and this lack of foresight has often caused much trouble and expense. It has been found that 19 of the municipal, and 29 of the incorporated water company systems have complete metered services.

During the droughts of 1908 and 1909 strenuous methods were required to reduce consumption; consumers were requested to stop waste, lawn and street sprinkling was prohibited, and in many towns the supply was restricted to certain hours in the day, or shut off entirely through the night. Where the information was accessible it was found that restricting waste, stopping lawn and street sprinkling, and looking after leaky plumbing resulted in reductions in consumption of from twenty-five per cent. to fifty per cent.

The larger the population, the larger in most cases is the reported per capita consumption, due, first, to more industries and consequently greater consumption for this purpose; second, greater public use of water; third, more general use by the inhabitants; fourth, greater leakage and waste.

The following table shows the average total consumption and average per capita consumption for municipalities in Pennsylvania, according to population:

TABLE NO. 17.

Consumption of Water, According to Population.

Population.	Average total consumption: gallons per 24 hours.	Average per capita consumption; gallons per 24 hours.	Number towns.
Over 500,000,	222,022,000	206.5	2
100,000 to 500,000,	38,887,800	231.5	2
50,000 to 100,000,	8,503,303	120.0	8
25,000 to 50,000,	4,404,375	115.6	8
10,000 to 25,000,	1,733,159	129.7	41
5,000 to 10,000,	914,304	134.2	46
2,500 to 5,000,	425,172	109.8	29
Less than 2,500,	76,664	64.2	112

The per capita consumption, as shown in the above table, was obtained by using only that part of the population of the town served with water by the public system, and not necessarily the total population of the community. It was found that in the smaller towns, the percentage of the population connected with the water system was relatively small, usually between 50 and 75 per cent. of the entire population, while as the towns grew larger, the percentage of the total population supplied became greater, the percentage not supplied in the larger boroughs and cities being very small. The principal factor affecting the per capita consumption in a public system is the quantity of water used for industrial purposes, and this factor is liable to cause wider fluctuations in the smaller than in the larger towns. In coal mining regions the per capita consumption was usually found to be high, due partly to industrial use and partly to the fact that much water was lost owing to cracks and leaks in the mains, due to the settling of the earth over mined sections. In large cities the frequency of street improvements and repairs encourages defects in the pipe system, thereby increasing the apparent per capita consumption. Where pumping is employed the general practice is to determine the apparent quantity of water supplied by an estimated pump displacement which is often much in excess of the actual delivery.

In determining the consumption in any given community, the domestic and public uses of water should be considered separately from the quantity of water used for industrial purposes. Water for industrial consumption is usually metered and more or less accurate figures of this important and variable part of the total supply may be readily determined and kept separate, so as to bear no part in the determination of the per capita consumption, except as a secondary figure, subject to rapid and excessive variations. The domestic per capita consumption, on the other hand, will usually be found to increase or decrease quite uniformly with the increase or decrease in the population.

INDUSTRIAL CONSUMPTION.

The consumption given in the above tables includes domestic, industrial and public use and leakage, and is the true index of the consumption, but it is also valuable to know the ratio of industrial to other uses. It was possible to obtain these data at numerous points, and the following table shows the relative amount of water so used to the total consumption. In certain of the industrial towns, the population has centered about some one important industry, and its use of water is a large per cent. of that of the whole town.

TABLE NO. 18.

Comparative Industrial & Municipal Consumption.

Water System.	Population.	Total consumption.	Industrial consumption.
Allegheny Valley Water Co.,	14,000	2,225,000	500,000
Allegheny Water Co.,	2,300	1,201,000	1,053,000
Armstrong Water Co.,	8,000	1,300,000	400,000
Berwick Water Co.,	14,000	2,000,000	1,400,000
Birdsboro Water Co.,	2,500	500,000	300,000
Blossburg Water Co.,	2,800	356,400	180,000
Bristol Water Company,	7,700	1,300,000	1,100,000
Catawissa Water Co.,	2,000	80,000	15,000
Citizens Water Co. (Canton),	1,700	250,000	125,000
Citizens Water Company of New Bethlehem,	1,800	80,000	40,000
Coraopolis Water Works,	5,000	800,000	20,000
Connellsville Water Co.,	14,000	1,675,000	175,000
Christiana Gravity Water Co.,	1,000	72,000	20,000
Clear Springs Water Co.,	18,000	1,200,000	50,000
Citizens Water Company of McDonald,	3,500	370,000	150,000
Driftwood Water Co.,	700	135,000	115,000
Diamond Water Co.,	17,000	700,000	23,000
Edgeworth Water Co.,	4,000	350,000	200,000
Ellwood Water Co.,	4,800	2,500,000	1,900,000
Hastings Water Co.,	1,900	13,200	10,000
Hazleburst Water Co.,	600	40,000	22,000
Hazleton Water Co.,	18,000	2,704,032	1,222,449
Hatboro Water Co.,	1,000	16,000	5,000
Hyndman Water Co.,	1,350	51,800	35,000
Irwin Water Co.,	3,650	250,000	172,300
Jersey Shore Water Co.,	5,000	1,250,000	1,000,000
Latrobe Water Co.,	12,000	3.000,000	1,500,000
Lehigh Water Co.,	12,000	2,470,000	300,000
Monongahela Valley Water Company,	14,000	1,500,000	325,000
Macungie Water Works,	700	259,000	100,000
Mahanoy City Water Co.,	15,000	1,750,000	600,000
New Chester Water Co.,	38,000	3,035,000	900,000
Newville Water Co.,	1,700	40,000	4,000
North Huntingdon Water Company,	1,250	10,000	7,000
Ohio Valley Water Co.,	32,000	2,600,000	100,000
Penn Boro Water Co.,	900	20,000	16,400
Penn Township Water Co.,	13,500	400,000	262.200
Riverton Consolidated Water Co.,	4,000	500,000	200,000
Reynoldsville Water Co.,	5,000	600,000	200,000
Rockwood Water Co.,	1,000	500,000	450,000
Saint Marys Water Co.,	6,000	1,100,000	426,000

TABLE 18—Continued.

Water System.	Population.	Total consumption.	Industrial consumption.
Sayre Water Co.,	12,000	1,500,000	225,000
Schuylkill Haven Gas & Water Co.,	7,000	600,000	500,000
Shenandoah Citizens Water & Gas Co.,	7,500	1,500,000	600,000
Siverly Water Co.,	1,000	210,000	200,000
South Pittsburgh Water Company,	100,000	6,900,000	1,200,000
Sharpsburg Water Works,	8,000	1,000,000	200,000
Suburban Water Company of Allegheny County, Pa.,	6,500	1,200,000	600,000
Sunbury Water Co.,	13,000	3,500,000	1,500,000
Williamsburg Water Works,	1,500	200,000	140,000
Westmoreland Water Company of Greensburg,	6,000	200,000	71,000
Westmoreland Water Company of Hempfield Township,	12,000	800,000	598,840
York Water Co.,	65,000	2,912,426	865,331

Large industries usually derive their water supply from sources independent of the municipal system; thus, most steel and iron works, being located on rivers, pump direct therefrom. The largest amount of water used at such plants is for cooling purposes, for which good quality is not essential. These works use vast quantities of water and a supply suited to municipal uses and in sufficient quantity for industrial use as well would in most cases be impossible to find.

The anthracite coal mines usually have systems of water supply from which the miner's houses, surrounding the collieries are furnished with water. There are usually two separate systems to such supplies, one furnishing water to the houses and boilers, and the other for the purpose of washing coal. Water for the latter purpose is almost always pumped from the mines. These mines are largely supplied by incorporated water companies, which are controlled by the coal companies. In the coke region a very similar condition exists.

The large leather tanneries, which in this State are held principally by a single corporation, use considerable quantities of water, furnished by the tanning companies, and supplying often the houses of employes, while a similar condition exists at the plants of the glass trust.

The railroads obtain their supplies from various sources. One large system supplies its main line almost entirely by a system of incorporated water companies, deriving their supplies by gravity from many small streams along the line. Others purchase water from incorporated water companies or municipal works, while at other points streams, springs and wells are employed through works owned by the railroads.

STORAGE.

The storage of water, that is the conservation of the surplus available in wet seasons for use during droughts, is becoming, and has in some sections of Pennsylvania become, a most important feature.

The droughts of 1908 and 1909 accentuated the necessity and value thereof. Communities which believed that the low water flow of their source of supply was ample for their requirements found the discharge thereof falling below the demand and restriction of consumption followed, and such communities are now considering additional sources of supply or storage. The Commission holds it preferable to induce such communities or water companies to conserve by storage the flow of one stream, making thereof an ample source, rather than to use an additional stream. This is in line with the fullest and best use of one water supply, and the more this practice can be extended the further the water supply will ultimately go in satisfying the requirements of the municipal and industrial demands.

Water storage has been installed by both municipal water works and incorporated water companies, to a considerable extent in the State, and much benefit has resulted thereby. Such a practice enables a large community to be supplied from a comparatively small stream, and thus to secure ample water, and of usually better quality than if a larger stream had to be employed. In the coal regions where all but the smallest streams are so polluted by mine washings as to rend them impossible of use, storage has been of inestimable value, while in the mountain districts, communities located at such an altitude that the neighboring streams are all small, storage often has permitted, and usually can permit, the acquisition of an adequate supply.

Storage is applicable chiefly to flowing streams, spring water and well supplies would not properly be stored, the storage taking place effectively under ground.

The fullest development of storage in Pennsylvania is to be found in the coal regions and near the summit of the Allegheny Mountains. Among the largest municipalities which receive supplies of stored water are Pottsville, Mahanoy City, Shenandoah, Girardville, Ashland, Minersville, Tamaqua, Schuylkill Haven, Orwigsburg, Wilkes-Barre, Pittston, Scranton, Carbondale, Hazleton, Shamokin, Altoona, Tyrone, Johnstown, Greensburg, Irwin, Uniontown, Washington and Lebanon.

In order to illustrate the extent to which storage is in use, and the intensity thereof at some points, as well as to show the possibility thereof, the following table is inserted.

TABLE NO. 19.

EXTENT OF STORED WATER SUPPLIES IN PENNSYLVANIA.

Water System.	Population.	Source of Supply.	Drainage area above intake, square miles.	Storage, gallons.	Storage per square mile, gallons.	Average daily consumption, gallons.	Daily consumption per square mile, gallons.
BLAIR COUNTY.							
Blair Gap Water Supply Co.,	Industrial supply,	Kettle Creek,	2.9	188,000,000	64,800,000	2,000,000	572,000
		Kettle Creek,	3.3	1,200,000	57,300,000		
		Kettle Creek,	3.5	35,000,000	63,800,000		
		Bells Gap Run,	14.0	65,026,000	4,643,000	----------	----------
		Blairs Gap Run,	3.0	30,000,000	10,000,000	----------	----------
		Blairs Gap Run,	12.5	110,000,000	11,200,000	----------	----------
Tyrone Gas & Water Company,	7,000	Sinking Run,	7.5	30,000 000	4,000,000	1,500,000	200,000
Altoona Water Works,	58,000	Burgoons Run,	8.5	421,000,000	50,000,000	4,500,000	401,800
		(Now building),	11.2	1,600,000,000	180,800,000	----------	----------
Allegheny Water Company,	2,300	Mill Run,	5.56	50,000,000	7,463,000	1,201,000	180,000
SCHUYLKILL COUNTY.							
Silver Creek Water Company,	Industrial and domestic supply.	Silver Creek,	1.03	220,000,000	203,883,000	1,440,000	1,400,000
Anthracite Water Company,	Industrial and domestic supply.	Mud Run,	0.70	202,000,000	289,636,000	1,500,000	2,143,000
		Waste House Run,	0.97	106,800.000	110,103,000	1,500,000	1,546,000
Crystal Water Company,	Industrial and domestic supply.	W. Br. Schuylkill River,	4.77	65,000.000	13,627,000	1,224,000	257,000
Pottsville Water Company,	28,000	Kauffmans Run,	0.78	150,000,000	192,308,000	----------	----------
		Eisenhuth Run,	1.30	300,000,000	230,770,000	----------	----------
		Wolf Creek,	1.63	200,000,000	122,700,000	----------	----------
Minersville Water Company,	7,000	Dyers Run,	4.12	13,000,000	3,155,000	1,000,000	222,000
		Dyers Run,	4.53	5,000,000	3,973,000		
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Schuylkill Haven Gas & Water Company,	7,000	Wagners Run,	0.70	2,000,000	2,857,000	----------	----------
		Wheeler Creek,	0.97	1,000,000	1,031,000	----------	----------
		Panther Creek,	0.4	6,890,625	17,226,562	----------	----------
Orwigsburg Water Works,	1,800	Silfis Run,	0.43	31,000,000	72,094,000	100,000	232,000
Tamaqua Water Works,	10,000	Owl Creek,	2.55	37,000,000	14,510,000	----------	----------
		Rapid Run,	1.36	18,000,000	13,235,000	----------	----------
Mahanoy City Water Company,	15,000	Tributary Mahanoy Creek,	0.11	38,795,000	298,420,000	----------	----------
		Coal Run,	0.53	41,087,000	77,522,000	----------	----------
Shenandoah Citizens Water & Gas Co.,	7,000	Kehley Run,	0.66	65,648,000	99,466,000	1,000,000	1,515,000
Girard Water Company,	Industrial and domestic purposes.	Lost Creek,	0.78	103,648,000	132,114,000	1,057,062	1,067,600
	Industrial and domestic purposes.	Raven Run,	0.21	73,580,890	350,385,000		
Ashland Water Works,	7,000	Little Mahanoy Creek,	2.12	8,000,000	3,773,000	----------	----------
LUZERNE COUNTY.							
Spring Brook Water Supply Co.,	234,000	Spring Brook,	15.74	75,000,000	4,800,000	15,000,000	283,000
		Rattlesnake Creek,	1.07	300,000,000	280,374,000		
		Spring Brook,	36.0	1,279,180,000	46,000,000		
		Falling Spring Creek,	0.79	229,410,000	290,400,000	750,000	428,600
		Falling Spring Creek,	1.65	69,665,000	181,300,000		
		Mill Creek,	5.07	616,700,000	121,650,000	6,000,000	600,000
		Deep Hollow,	5.94	241,425,000	144,460,000		
		Gardners Creek,	5.13	73,975,000	14,420,000	----------	----------
		Laurel Run,	8.5	35,000,000	4,117,500	4,000,000	235,000
		Laurel Run,	8.95	5,000,000	4,470,000		
		Crystal Lake,	2.95	1,650,000,000	559,322,000	6,000,000	571,430
		Toby Creek,	8.44	1,750,000,000	207,346,000	7,000,000	471,700
Hazleton Water Company,	17,500	Catawissa Creek,	6.836	70,706,465	81,600,000	----------	----------
LACKAWANNA COUNTY.							
Scranton Gas & Water Co.,	125,000	Roaring Creek,	0.8	205,000,000	256,250,000	35,000,000	531,000
		Oak Run,	3.0	420,000,000	140,000,000		
		Roaring Brook,	34.9	1,300,000,000	55,157,000		
		Roaring Brook,	49.1	80,000,000	40,835,000		
		Stafford Meadow Brook,	5.1	340,000,000	66,666,000		
		Stafford Meadow Brook,	6.2	2,650,000,000	482,258,000		
		Stafford Meadow Brook,	10.1	30,000,000	300,000,000		
		Griffin Creek,	3.1	579,000,000	186,774,000		
		Summit Creek,	1.0	212,000,000	212,000,000		
		Summit Creek,	3.1	4,000,000	70,000,000		
		Summit Creek,	3.6	1,000,000	60,280,000		
Dunmore Gas & Water Company,	15,000	Little Roaring Creek,	0.78	15,000,000	19,231,000	1,500,000	306,000
		Little Roaring Creek,	0.85	10,000,000	11,765,000		
		Little Roaring Creek,	4.9	78,000,000	21,020,000		

TABLE 19—Continued.

Water System.	Population.	Source of Supply.	Drainage area above intake, square mile.	Storage, gallons.	Storage per square mile, gallons.	Average daily consumption, gallons.	Daily consumption per square mile, gallons.
Winton Water Company,	14,000	Grassy Island Creek,	2.65	97,246,000	36,696,000	1,800,000	486,486
		Grassy Island Creek,	3.7	1,816,000	26,774,000		
Archbald Water Company,	7,000	Laurel Run,	1.56	9,194,000	5,893,000	1,000,000	269,000
		White Oak Run,	2.16	4,829,000	2,236,000		
Crystal Lake Water Company,	15,000	Racket Brook,	0.36	31,000,000	86,111,000	2,000,000	448,000
			2.4	264,000,000	122,916,000		
			4.1	847,000,000	278,536,000		
CAMBRIA COUNTY.							
Johnstown Water Company,	70,000	St. Clair Run,	5.0	15,000,000	3,000,000	10,000,000	303,000
		Mill Creek,	5.5	129,000,000	23,455,000		
		Dalton Run,	4.05	130,000,000	32,100,000		
		Saltlick Run,	10.0	400,000,000	40,000,000		
Summit Water Supply Company,	Industrial purposes,	So. Fork, Little Conemaugh River,	8.0	207,000,000	25,875,000		
		Beaverdam Run,	6.87	213,862,000	31,130,000		
		No. Br. Little Conemaugh River,	25.0	1,025,100,000	41,004,000		
		Bear Rock Run,	3.0	35,000,000	11,666,000		
Manufacturers Water Company,	Industrial supply,	Hinckston Run,	10.75	1,000,000,000	93,023,000	9,000,000	837,000
COLUMBIA COUNTY.							
Locust Mountain Water Co.,	Industrial and domestic purposes.	So. Br. Roaring Creek,	4.45	33,800,000	7,550,000		
NORTHUMBERLAND COUNTY.							
Roaring Creek Water Company,	Industrial and domestic purposes	So. Br. Roaring Creek,	8.82	306,000,000	38,526,000		

WESTMORELAND COUNTY.							
Westmoreland Water Company,	45,000	Armel Run,	1.45				
		Nine Mile Run,	0.5	177,000,000	59,000,000		
		Sewickley Creek,	1.05			1,700,000	463,000
		Township Line Run,	0.67	486,000,000	180,650,000		
WASHINGTON COUNTY.							
Citizens Water Company of Washington, Pa.,	20,000	Tributary Chartiers Creek,	2.3	600,000,000	260,869,000	1,000,000	270,000
		Tributary Chartiers Creek,	1.4	106,000,000	75,714,000		
LEBANON COUNTY.							
Lebanon Water Works,	21,000	Tributary Hammer Creek,	1.12	52,000,000	46,400,000	----------	----------
FAYETTE COUNTY.							
Uniontown Water Company,	15,000	Cool Spring,	3.0	27,500,000	9,166,000		
		Bennington Spring Run,	1.3	1,500,000	1,154,000	1,500,000	220,000
		Hutchinson Run,	2.5	134,000,000	53,600,000		

The rate of storage per square mile of drainage area above the reservoir is the index of the intensity thereof, and the rate of consumption therefrom in gallons per 24 hours, per square miles, indicates the value thereof. The highest rate of storage in Pennsylvania is that of the Scranton Gas and Water Company, on Stafford Meadow Brook, Lackawanna County, where a storage of 2,990,000,000 gallons has been constructed upon a watershed of 6.2 square miles, or at the rate of 482,258,000 gallons per square mile. The greatest rate of consumption from a stored watershed is that of the Anthracite Water Company on Mud Run, Schuylkill County, a tributary of the Schuylkill river, where a reservoir of 202,000,000 gallons has been built on a watershed of 0.7 square mile, and an average draft of 1,500,000 gallons per day obtained therefrom, or at the rate of 2,143,000 gallons per 24 hours. Owing to the fact that this region is subject to from 50 inches to 55 inches of rain annually, the greatest in the State, this reservoir is filled each year but the heavy draft on it would exhaust it during extreme droughts if maintained at that rate.

The actual largest quantity of water stored artificially for water supply purposes is that stored on Stafford Meadow Brook, in Lackawanna County, by the Scranton Gas and Water Company, which has a capacity of 2,650,000,000 gallons on a watershed of 6.2 square miles, while just above it is a smaller reservoir of 340,000,000 gallons. Other large storage basins are those of the Spring Brook Water Supply Company, on Spring Brook, Luzerne County, capacity 1,279,180,000 gallons; on Toby creek, capacity 1,750,000,000; and on Wapwallopen creek, capacity 1,650,000,000 gallons, the two latter being natural lakes whose outlets have been dammed; the Scranton Gas and Water Company, on Roaring Brook, capacity 1,300,000,000; Summit Water Supply Company, on North Branch of Little Conemaugh river, 1,025,000,000 gallons; Manufacturers Water Company, on Hinckston Run, Cambria County, capacity 1,000,000,000 gallons.

CHAPTER NO. 2.

WATER RATES.

The rates charged by water companies and municipalities owning water works most concerns the public after the actual obtaining of water, and unfortunately, under the existing legislation, it does not come within the jurisdiction of this Commission. Much has been done by legislation and regulation to control rates charged by railroad companies, but however general may be the use of railroads, or however great their necessity, their use is not more general, nor their necessity greater than the supply of water; yet practically nothing has been done to regulate water rates, which have been the source of much litigation and dissatisfaction throughout the State. The only legislation on this subject is that allowing the Courts of Common Pleas to hear and determine complaints as to excessive rates charged, but this cannot lead to any uniform system of assessment or control. Water companies, as all other public service corporations, may not discriminate in fixing rates among their consumers, but there is nothing to prevent a water company in one district from fixing rates which are entirely fair, while under the same conditions another company in an adjoining municipality may fix its rates so as to return an unfair profit.

The endeavor of this Commission has always been to provide for the best use of the water supply of the State, and to see that communities and water companies are fairly and equitably dealt with. Numerous disputes have come before the Commission between water companies and consumers which have shown the antagonism which can arise in matters concerning the water supply. The Commission has been considering detailed questions of water supply for some years, becoming conversant with the conditions existing throughout the State, and it is in a condition, therefore, through its employes, to obtain accurately the facts existing in such cases and to pass upon them, both with a technical knowledge and unprejudiced mind. With the knowledge that disputes involving the rates charged by water companies come within the jurisdiction of the respective county court, the Commission has been loath to undertake the investigation of this subject, but its underlying prominence in most conflicts between those supplying water and those consuming it, has led the Commission to make a thorough study of the matter. The Commission is furthermore familiar with the usual practice in disputes between water companies and consumers with regard to rates and other matters which come before the courts, and realizes that the court must receive largely the prejudiced opinions of both sides, and must arrive at its decision only after balancing and judging the probable accuracy of this prejudiced testimony. It would seem, therefore, that the Commission could not only save money for the State, but for the consumer and the water company as well, if where the consumers of water are dissatisfied with existing rates, or with proposed changes therein, such matters were brought to the Commission for investigation and decision, and furthermore if water companies were required to have the approval of the Commission before making changes in rates.

The Commission has gathered such information and data as it has been able with respect to this subject, and the statements herein contained are based upon the rates furnished to this office by 541 of the 588 operating water supply systems in Pennsylvania.

ELEMENTS EFFECTING RATES.

Rates for water must of necessity vary in accordance with the conditions surrounding each plant, for with water supply systems, as in other lines of business, the cost of production must be considered in fixing the cost to the consumer, and that cost depends upon many conditions. Water companies usually operate without competition, so that this element in controlling prices is lacking. With proper control of rates, one system of water supply in a community is to be preferred, for a single prosperous plant can give better service than two conflicting ones.

The physical conditions controlling the cost of the water to the company are probably alike into two cases, and the price of the water to the consumer must vary accordingly. Elements, such as the cost of water rights, rights of way, taxes, etc., as well as the first cost of the plant, control the rate while there are many cases, no doubt, where speculation, over-capitalization and a desire to reap large profits at the expense of the public have resulted in exhorbitant and unfair rates. The first cost to the company depends upon the distance of the source of supply from the place supplied, and upon the topographical conditions in the country through which the water is piped, the size and character of the reservoirs, cost of storage, together with the costs incurred in procuring its water rights and necessary land for the construction of the works.

After the plant is built, the cost of operating it is the next item of expense, and this may vary with the different methods of furnishing water. In this connection must be considered whether the water is supplied by gravity or by pumping, and if the latter, the cost is greater. So also the cost may vary with the manner in which the pumping is done, that by water power being usually cheaper than by steam power. Another important item of operation to consider is the fixed charge, the interest on the bonded indebtedness, to which should be added an allowance for fair returns to the stockholders in the shape of dividends upon legitimate stock. At this point the cost is often unduly increased by reason of excessive bond issues, representing the whole cost of the plant or more, in addition to which there is also an issue of stock upon which returns are expected, but which represents no expenditure of money, with the result that unfair and excessive rates are charged. This practice is the outgrowth of the method of construction of plants by promoters, who have no intention of operating them but whose sole object is to sell out upon completion, or as soon as possible. It has also resulted from the practice quite general in Pennsylvania of buying the stock of unbonded works and issuing and selling bonds, not only to the amount of the purchase price but to whatever amount the revenue will permit.

Another item of expense may occur where it is necessary to purify or soften the water. Many waters of the State do not require such treatment, but water procured from the larger streams, or from streams draining highly developed regions, cannot be supplied oft times without purification, and without the consequent increase of cost.

The age of the company should also have an effect on the rates charged, for when a company first installs its plant the growth of its business is slow; consumers are added gradually, and it is often many years before the expected proportion of the houses in the town are connected up. New companies desiring to earn and pay early dividends are thus prompted to charge higher rates.

It seems to be quite usual for the water company alone to profit by the naturally advantageous location of a town with respect to the source of water. Thus where a community is so situated that its water works can be built cheaply assuring a large income upon the investment with rates customary in neighboring towns less favorably situated, the owners of the stock of such a company sell bonds to as great an amount as can be marketed upon the basis of the income, and pocket the money so received. Even after such a procedure as this, which may often be continued as the town grows and the income increases, the attempt is made to set rates so as to enable the declaration of dividends upon the stock. It would seem far more equitable that the inhabitants of the town should profit through lower rates, from its favorable location.

The question of municipal of corporate ownership of water works naturally enters into this question of rates, and it would seem that the current practice of over-bonding and over-capitalization of water companies should make municipally owned plants decided beneficial to the consumer. This advantage, on the other hand, is somewhat offset by the less business-like manner in which municipal water works are often operated. The investigations have disclosed the fact, however, that municipal plants of comparable class usually charge less than corresponding incorporated company plants.

The density of population of the community supplied is an important factor in determining the cost of the service. Thus a plant furnishing water to one compact and closely built up community could afford to charge a lower rate than one supplying a number of adjoining suburban settlements made up of single houses spaced some distance apart.

The amount of industrial consumption also effects the necessary price charged, for some plants supply certain large industrial establishments with an amount of water from a single tap as to return a good income on the investment, and so would permit of very low rates to domestic consumers. Others have practically no industrial consumption and so must rely on the domestic consumer for their entire revenue.

Another element affecting the cost of water to the consumer is the nature of the franchise given to the water company, in some cases the franchise requires water to be furnished for fire protection and other public purposes free, so that the consumer must pay for such water in his rates, while other municipalities pay a considerable charge for water used for public purposes and the consumer's rate may be proportionately lower.

On first thought it might appear that there would be little need of regulating or supervising the rates charged in municipalities where the water works are publicly owned and operated. Questions have arisen, however, in regard to such plants which are most difficult of adjustment. The general practice it seems in Pennsylvania is for such plants to furnish water free for municipal buildings, fire protection, street and sewer flushing, charitable institutions, schools, etc., and this practice necessitates the collection of such sums from the water consumers as will pay for the water consumed by them, and also for the public uses above enumerated. This makes the consumer who may not be a taxpayer help pay for water used for public purposes, which should be paid for by the taxpayer. In other words, a non-resident property owner pays nothing toward the water used for the protection of property from fire, nor for the municipal offices, street cleaning, etc., which he should rightfully pay. The water used in these ways is often estimated and a charge put in the reports of the Water Department for it, in order to show larger profits, thus proving good management, etc., but seldom is the Water Department actually reimbursed therefor. This charge is often a very large item as is evidenced by the single item of fire protection paid to water companies by many municipalities, and may be from twenty per cent. to fifty per cent. of the total income of the plant.

METHODS OF CHARGING.

Water rates are sometimes set by ordinance and are a part of the franchise of the water company, being set thus for a fixed term of years, to be changed only when the franchise expires. In other cases the rates may be set by the company and changed at pleasure with no provision for rates in the franchise. The former is of course the better practice for the community. The practice of having the rates subject to approval by the municipal authorities is perhaps the most to be preferred. If communities would take the precaution to include such a provision in the franchise when first given, or when renewal is requested, much difficulty would be obviated. The rates are seldom, if ever, based carefully upon the physical and economic factors discussed above, but are more likely to be set in accordance with those of towns familiar to the owners of the plant or to the councilmen.

There is a considerable variation in the methods employed by water companies and municipalities in charging for water. Some of the smaller companies charge one rate whatever the service may be, no matter whether there is only a single hydrant or numerous outlets. A large percentage of municipalities and water companies use the flat rate system, as distinguished from a rate based upon the quantity of water used, the usual practice among such systems being to charge a certain fixed rate for the first tap in a house of a certain size in which one family is living, and to provide for an additional charge for each additional outlet, depending upon its nature. It was found that 40.3 per cent. of the municipal and 57.7 per cent. of the corporate plants use entirely the flat rate method of charging. Certain companies and municipalities use the meter system of charging for water, by which the actual quantity of water consumed is paid for at a fixed rate dependent upon the quantity of water consumed which is used and an assesed minimum rate per annum. Fifteen and three-tenths per cent. of the municipal and eight per cent, of the corporate systems charge entirely upon this metered basis. Another method of charging for water is usually the result of an endeavor to establish a metered system in a community which had previously been charged for water upon the flat rate basis, resulting in a combination of the two methods with a minimum flat rate, but amounting to less than the flat rate for a house with modern improvements. Forty and three-tenths per cent. of the municipal and 33.8 per cent. of the corporate systems use this method of charge. A few of the municipal systems, comprising 4.1 per cent. of the total number, charge for water by a system of taxation upon the assessed valuation of the property of the consumers. Such systems are all small, as are the 0.5 per cent. of the water company systems charging for water upon the basis of property taxation.

The following table illustrates the methods of charging for water by municipal and corporate plants.

TABLE NO. 20.

Methods of Charging for Water.

Methods of Charge.	Municipal Plants.		Corporate Plants.	
	Number.	Percentage.	Number.	Percentage.
Metered,	19	15.3	29	8.0
Flat,	50	40.3	210	57.7
Combined (Flat and Metered),	50	40.3	123	33.7
Taxation,	5	4.1	2	0.6
Total,	124	100.0	364	100.0

An important question arising in a metered or partially metered system pertains to the first cost of ownership of the meter, and four separate methods are employed in their installation and maintenance. By the first method, the water company or municipality pays for the meter and the consumer is not charged directly with it; by the second the consumer pays for and becomes the owner of the meter; by the third the water company buys and installs the meter at its own expense, but charges the consumer with a certain yearly rent for the same. Lastly, the consumer pays for the meter, but is allowed a certain refund in his water rent until the meter is paid for, when it becomes the property of the company.

COMPARISON OF MUNICIPAL AND INCORPORATED COMPANY RATES.

In the study of the relation of the rates charged by corporate and municipal plants under various conditions and various types, summarized in the following pages, it was found necessary to assume certain fixed conditions from which to determine the rates of each system. In the metered, or the combined flat and metered plants, the metered rate assumed was the maximum for domestic consumers, and the minimum rate per annum where given. Under the flat rate charge per annum two conditions were assumed for a six-room house and single family. The first was the minimum rate for the first tap, or hydrant, in yard or kitchen, and the second for the first tap with bath and water closet in addition.

It was found, as might be expected, that the average municipal rates are lower than those of incorporated water companies. Municipal rates are probably more often assessed upon the basis of a fair return upon the actual investment and cost of operation, while many water company plants are forced to charge high rates in order that the interest on excessive bond issues may be met. On the other hand municipal water works seldom charge the other departments for water used thereby, so that the cost of this water has to be born by the consumers of water in such cases, while when the water works are owned by a corporation, the taxpayers usually pay for publicly used water. In 69 towns the average municipal metered rate has been found to be $0.27 per 1,000 gallons, while among 150 water companies the average metered rate per 1,000 gallons is $0.34, the municipal rate being 80 per cent. of that of the water company average. In the flat rate, single tap, the average municipal charge for 100 towns was $5.48, and the average water company rate for 324 systems was $7.26, the municipal, therefore, being 75 per cent. of the corporate rate. Among the flat rates for first tap, closet and bath, the average municipal charge for 97 towns was $10.53, and the average corporate rate among 326 systems was $13.47, the municipal rate for this combination being 78 per cent. of that for corporate plants. Owing to the fact that poor business methods, to say the least, enter into the construction and operation of some municipal water works, it is evident that the average municipal rates would be still less if the plants were properly constructed and operated, in which event the difference between municipal and corporate rates would be still greater.

In order to show the comparison between the above rates charged by Pennsylvania water companies and those in New York, the following average rate charged by companies in 86 municipalities in New York State are given; for the first tap $5.40, against $7.26 charged by Pennsylvania companies; for three taps the New York rate is $11.60 against $13.47 in Pennsylvania.

In the endeavor to throw additional light on the relative rates charged by municipal water works and by water companies, information was obtained from municipalities which had purchased the works of water companies as to what changes, if any, were made in rates after the works were taken over by the municipality. A total of 22 cities and boroughs have purchased works from water companies, but only a few of these purchases are of sufficiently recent date to make it practicable to obtain the rates charged by the original company. Of the eight towns of which information was obtained, five made no change in the rates, one did not alter the rates until some time after the purchase, following the installation of a filtration plant, when an increase was made, one raised the rates by 100 per cent., but put in a new supply system replacing an entirely inadequate one, and one made material reductions in the rates and improvements to the plant. While these data indicate that the rates to the consumers were reduced only in one case, the cost of the supply to the municipality as a whole was probably in numerous instances reduced by the amount of the fire hydrants rental and by the cost of the water furnished for public purposes. It is not customary for other branches of the municipal government to reimburse the Water Department for service provided them, and if the revenue from private consumers was not adequate to pay expenses, an increase in rates would presumably have followed.

COMPARISON OF RATES OF GRAVITY, PUMPING AND COMBINED GRAVITY AND PUMPING.

In comparing the average rates for gravity, pumping and combined gravity and pumping sytems for municipal and corporate plants, it was found without exception, in the three assumed methods of charging that the gravity systems charge less than the combined gravity and pumping plants, and that the pumping systems charged a higher rate than the combined gravity and pumping plants. This fact is clearly indicated in the following table, in which the average rates for gravity, pumping and combined gravity and pumping systems for corporate and municipal plants are compared.

TABLE NO. 21.

Comparison of Flat and Metered Rates of Municipal and Corporate Plants for Gravity, Pumping and Combined Gravity and Pumping Systems.

System.	Metered.		Flat—1st Tap.		Flat—1st Tap, Closet and Bath.	
	Rate per 1,000 gals.	Number of systems.	Rate per annum.	Number of systems.	Rate per annum.	Number of systems.
Municipal:						
Gravity,	0.18	12	5.04	34	9.62	32
Combined,	0.26	9	5.24	17	9.88	18
Pumping,	0.30	47	5.86	48	11.39	47
Corporate:						
Gravity,	0.29	37	6.59	126	12.12	137
Combined,	0.29	32	7.24	62	13.78	61
Pumping,	0.39	79	7.98	125	14.80	127

It may be seen from this table that the average municipal rates for pumping plants are even less than the average corporate rates for gravity systems, with the exception of a one cent difference in the metered services in favor of corporate plants, or in other words it is cheaper for any community to be supplied with water by a municipally owned pumping system than by a gravity supply from a corporate plant.

The average difference in charge between the flat rate services for a single tap, and for the first tap, closet and bath, for municipal plants is $4.92, and for corporate plants is $6.33, although the average rate of advance for the three taps over the single tap for municipal systems is 94.8 per cent., and for corporate systems is 87 per cent.

COMPARISON OF RATES IN COMMUNITIES OF DIFFERENT POPULATION.

In the following table a comparison is made of rates of municipal and corporate water supplies in towns of various population, for gravity, pumping and combined gravity and pumping systems. It would naturally be supposed that the average rate for any type sytem, either municipally or corporately owned, would decrease as the population increased, but the statistics as presented in this table do not clearly prove this theory and indicate that population bears little relation to rates charged by water companies. It is probable that the natural conditions with regard to density of population, character of houses and inhabitants, etc., may preclude the possibility of indicating any gradual or general change in rates of towns of various sizes in a table of the general nature of the following.

TABLE NO. 22.

Comparison of Flat and Metered Rates of Municipal and Corporate Plants for Gravity, Pumping and Combined Gravity and Pumping Systems in Communities of Various Populations.

Population.	System.	Metered.		Flat—1st Tap.		Flat—1st Tap, Closet and Bath.	
		Rate per 1,000 gallons.	No. of systems.	Rate per annum.	No. of systems.	Rate per annum.	No. of systems.
Municipal:							
0	Gravity,	0.30	1	4.64	9	8.73	8
to	Combined,	0.30	1	5.67	3	10.50	3
1,000	Pumping,	0.35	3	6.87	4	11.88	5
		Mean 0.32	5	Mean 5.73	16	Mean 10.37	16
1,000	Gravity,	0.14	9	5.13	21	9.68	21
to	Combined,	0.69	2	5.07	1	9.21	7
5,000	Pumping,	0.35	26	6.22	20	11.55	19
		Mean 0.19	37	Mean 5.47	48	Mean 10.15	47
5,000	Gravity,	0.20	1	5.67	3	12.50	2
to	Combined,		0		0		0
10,000	Pumping,	0.25	8	5.09	9	10.98	9
		Mean 0.22	9	Mean 5.38	12	Mean 11.74	11

TABLE 22—Continued.

Population.	System.	Metered.		Flat—1st Tap.		Flat—1st Tap. Closet and Bath.	
		Rate per 1,000 gallons.	No. of systems.	Rate per annum.	No. of systems.	Rate per annum.	No. of systems.
10,000 to 25,000	Gravity,	0.25	1		0		0
	Combined,	0.29	5	5.33	6	9.88	6
	Pumping,	0.20	5	5.86	7	11.79	7
		Mean 0.25	11	Mean 5.60	13	Mean 10.84	13
25,000 to 50,000	Gravity,		0		0		0
	Combined,		0	6.00	1	13.50	1
	Pumping,	0.12	1	4.37	2	9.75	2
		Mean 0.12	1	Mean 5.19	3	Mean 11.63	3
50,000 to 100,000	Gravity,	0.33	1	4.80	1	9.80	1
	Combined,	0.40	1	4.50	1	9.00	1
	Pumping,	0.20	3	5.92	3	12.51	3
		Mean 0.31	5	Mean 5.07	5	Mean 10.65	5
Over 100,000	Gravity,		0		0		0
	Combined,		0		0		0
	Pumping,	0.04	1	5.12	2	9.12	2
		Mean 0.04	1	Mean 5.12	2	Mean 9.12	2
Corporate:							
0 to 1,000	Gravity,	0.31	8	6.40	62	11.40	62
	Combined,	0.33	4	7.85	12	13.43	12
	Pumping,	0.43	8	8.06	25	13.60	27
		Mean 0.36	20	Mean 7.44	99	Mean 12.81	101
1,000 to 5,000	Gravity,	0.25	16	6.89	50	12.55	53
	Combined,	0.25	16	6.95	33	13.25	32
	Pumping,	0.41	34	7.95	55	14.97	57
		Mean 0.30	66	Mean 7.26	138	Mean 13.59	142
5,000 to 10,000	Gravity,	0.29	8	6.64	11	13.32	11
	Combined,	0.27	5	7.52	10	15.83	10
	Pumping,	0.43	13	8.20	19	16.38	18
		Mean 0.33	26	Mean 7.45	40	Mean 13.69	39
10,000 to 25,000	Gravity,	0.35	4	6.05	4	12.12	6
	Combined,	0.39	5	7.19	5	13.17	5
	Pumping,	0.31	12	8.17	14	15.24	14
		Mean 0.35	21	Mean 7.14	23	Mean 13.69	25
25,000 to 50,000	Gravity,	0.20	1	7.23	3	14.28	3
	Combined,	0.20	1	5.70	1	12.35	1
	Pumping,	0.35	6	7.41	8	13.94	9
		Mean 0.25	8	Mean 6.78	12	Mean 13.52	13
50,000 to 100,000	Gravity,	0.27	1	9.75	1	15.75	1
	Combined,		0		0		0
	Pumping,	0.36	2	7.00	2	14.25	2
		Mean 0.31	3	Mean 8.38	3	Mean 15.00	3
Over 100,000	Gravity,		0		0		0
	Combined,	0.25	1	8.00	1	16.00	1
	Pumping,	0.37	1	9.00	1	16.00	1
		Mean 0.31	2	Mean 8.50	2	Mean 16.00	2

The preceding table indicates that for municipal plants the rates charged for water follow not exactly, but to a certain degree, the variation in population, and that the rates charged by water companies seem to bear no relation to the population. In the municipal rates for various sized towns, it may be determined by an analysis of the table, that the lowest are found in the towns having a population of over 100,000, the second lowest in towns having populations between 1,000 and 5,000, the third lowest in the class between 50,000 and 100,000 population, the fourth, fifth and sixth lowest in towns having populations between 2,500 and 5,000, 10,000 and 25,000, and 5,000 and 10,000 respectively, and that the highest rates are found in the smaller systems in towns of less than 1,000 population, It indicates that with the exception of towns between 1,000 and 5,000 population, the general tendency in rates of municipal plants is to decrease with the increase in population.

Among the corporate plants, on the other hand, the highest rates, as shown by the table, are charged by systems operating in territory whose population exceeds 50,000, directly the opposite of municipal systems. It is thought that this condition may be accounted for by the fact that municipal supplies in large cities serve comparatively congested districts because of the fact that they are confined to municipal limits, while the large corporate systems, such as the Scranton Gas and Water Company, the South Pittsburgh Water Company, the Spring Brook Water Supply Company, the Pennsylvania Water Company, and the Springfield Consolidated Water Company serve wide territories containing many scattered municipalities and intervening townships. The lowest corporate rates are charged by companies furnishing water in towns having populations between 25,000 and 50,000, the second lowest corporate rates, as in municipalities, in towns between 1,000 and 5,000 population, the third lowest in plants supplying populations under 1,000, the fourth and fifth in towns between 10,000 and 25,000, and 5,000 and 10,000 population respectively, and the sixth and seventh, as has been stated, in systems supplying populations between 50,000 and 100,000, and over 100,000 respectively.

COMPARISON OF RATES OF FILTERED AND UNFILTERED SUPPLIES.

In the following table and text a comparison is made of the rates charged by filtered and unfiltered supply systems, both municipal and corporate, of similar character. It is a question beyond dispute that the cost of furnishing water from any given source is greater if filtered than if supplied in an unfiltered condition, but the rather remarkable fact remains that among both municipal and corporate systems, the average rate charged for filtered supplies is less than that of unfiltered supplies. It may be that those systems furnishing filtered water are operated upon a more business-like basis, and that a fair return upon the money invested may be received with a lower assessment, or some elements, such as the density of population in the territory served, etc., may enter into the fixing of rates, but it is thought that the number of sytems considered in the table should equalize any peculiar conditions.

TABLE NO. 23.

Comparison of Rates of Filtered and Unfiltered Supplies for Municipal and Corporate Systems (All Pumping Plants.)

System.	Metered.		Flat—1st Tap.		Flat—1st Tap, Closet and Bath.	
	Rate per 1,000 gallons.	No. of systems.	Rate per annum.	No. of systems.	Rate per annum.	No. of systems.
Municipal:						
Filtered,	0.20½	10	5.60	10	11.47	10
Not filtered,	0.32	40	5.86	40	11.34	38
Corporate:						
Filtered,	0.41	29	6.11	44	11.82	44
Not filtered,	0.38	54	7.99	96	14.66	99

It will be noticed that the average unfiltered rate in the municipal group for three taps is slightly less than the filtered rate, and that the same exception is true in the corporate group for metered rates, but in all other instances the rate for unfiltered supplies is greater than that for the filtered supply.

A comparison has also been made between the rates charged among the 56 plants in Pennsylvania having filters before and after the filters were put in operation. It was found that 30 among 39 water companies and 10 of 12 municipal plants made no change in the rates after filters were installed. Seven of the water company plants increased the rates on an average of 40 per cent. and two such plants decreased the rates an average of 24 per cent. Only two municipal plants increased the rates after a filtration process was installed, the average increase being at the rate of 34 per cent. It cannot be assumed, however, that this increased charge for the filtered water serves as an indication of the increased cost of furnishing the filtered water. It is probable that in few cases, where the rate has been increased after the installation of filters, is the increased rate comparable with the difference in the cost of filtering the water, but that the rates are fixed more or less arbitrarily. It is possible that the occasion of installing filters may have been taken as a good time to regulate rates that had previously been unsatisfactory, either because the plant had been operating at a loss or at not a sufficient profit. The fact, however, that so large a percentage of the plants installing filters made no change in the charge for water, and that some decreased their rates, seems to indicate very clearly that the usual method of fixing rates among water company and municipal plants is not by an accurate determination of the cost of furnishing water, but by some haphazard method, often by comparing charges of other systems. If the rates were right before the installation of the filter plant, an increase would be necessary afterwards in order to maintain the same profit.

A recognized authority on water purification states that "the cost of filtering, including capital, depreciating and operating expenses, has usually ranged between 5 per cent. and 20 per cent. of the whole cost of the service, and I think 10 per cent. is not far out as an average figure. The percentage is less in a case like Springfield, Mass., with a relatively expensive gravity supply, which is easily and cheaply filtered, and is greater where a raw water is found close at hand, but of such a nature as to require unusually expensive works for its treatment, such, for instance, as Watertown, N. Y., and Columbus, Ohio.

Of course, theoretically, purifying water calls for a corresponding increase in the water rates. Practically, such increase has been made in a few cases within our experience. More frequently it has not been necessary. The reason for this is that in the natural course of events, with a growing city, with fixed rates, the income increases considerably more rapidly than the population, and the water rates can be reduced every 10 years or so by a certain percentage without decreasing the per capita revenue. The installation of filters coming at a time, or somewhere near a time, when some of these natural reductions might be made, the work is financed without making the reduction, and the rates go on unchanged. This, I should say, happens at least 9 times out of 10, but even in this case it is unquestionably true that if the filtration were not installed there might be, with equal justice to the owners, a corresponding reduction in rates, so I should maintain that the cost of purification is all cases increases the cost of the service to the consumers by a substantial percentage, almost always within the limits first above given."

FIRE HYDRANT RATES.

The rental for fire hydrants is a most important item in the revenue of incorporated water companies, and it has only been through the obtaining of good contracts for this service with municipalities that numerous plants have been able to be built. The price which the borough pays for fire hydrants is usually fixed in the franchise given to the water company and is made more permanent in this instrument, as a rule, than the rates to consumers. The usual custom is for the borough to pay a fixed price per hydrant regardless of the amount of water used for fire purposes; in no instance has record been obtained of water used for fire purposes being metered. Some companies permit of the use of fire hydrants for street and sewer flushing, including this service in the annual rental, while others permit the use of the fire hydrants only for fire protection. It is not possible at this time to state the exact proportion which the fire hydrant rental is of the annual income of incorporated water companies, but an estimate thereof is possible by an examination of the charge made by certain municipal plants against the city governments for fire service. For example, reports from five of the larger cities show that the average price charged against the city (but not collected) for fire service, on the basis of the average rate charged by all water companies, is approximately 10 per cent. of the total income of the Water Department, the larger the population, the smaller being the percentage, varying from 7 per cent. to 18 per cent. in the five cities thus considered.

The usual custom among water companies is to charge for fire hydrant service, but of the 214 municipalities of which record is available, 20 or 9.3 per cent. are not charged for the same by the water company. The maximum rate charged is $50 per hydrant per year, and the minimum rate is, of course, zero, with the charge varying between these limits. The 214 municipalities involved are supplied with a total of 10,093 fire hydrants paying for the same $206,980.90 per year, equal to an average rate of $20.51 per hydrant per year. It is quite customary for the water company to charge a higher rental for the first hydrants installed and to furnish additional hydrants at a reduced price. Thus in one instance a charge of $50 each is made for the first 70 hydrants, $45.71 for the next 7, $25 for the next 42, and the last 7 are furnished free. An interesting example of an exceptional arrangement between the municipality and the water company in relation to fire service is that of a city in the anthracite coal region. When water was first introduced in this municipality in 1834, the water company was required to furnish fire service free of charge, and as a counter consideration the borough at that time guaranteed the water company 6 per cent. interest on their investment, for which, however, the municipality has never been required to contribute. From the 1907 report of the State Water Supply Commission of New York, it appears that the average rate of charge for fire hydrants, based on returns from 51 municipalities, was $29, as against a charge of $20.51 in Pennsylvania.

APPENDIX A.

WATER SUPPLY STATISTICS

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WATER SUPPLY STATISTICS.

There have been 1,751 water and water power companies incorporated in the State of Pennsylvania, of which 851, or 49 per cent. are in active operation. Of the incorporated companies 1,474, or 84 per cent. are for the supply to the public, 126, or 7 per cent. for commercial and manufacturing purposes, 84 are water power companies, and 67 were incorporated for both the supply of the public and for commercial and manufacturing purposes.

There have been 176 companies, or 10 per cent. of the total, dissolved by decree of court, and 271, or 15 per cent., have filed affidavits to the fact that they are not in operation.

Mergers involve 159, or 9 per cent., of the companies, through 36 merged corporations, an average of 3.42 constituent charters to each such merger. The largest mergers are the Crystal Springs Water Company, the Pennsylvania Water Company, and the Trafford Water Company, each of which comprise eight constituent charters.

Consolidations by the purchase of the rights and franchises of other companies involve 229 charters, the total number of such consolidations being 59, an average of 2.88 constituent charters to each such consolidation; the largest being the Summit Water Supply Company, with 15 charters.

The largest consolidations are effected by lease or by stock ownership, the operating company leasing numerous charters covering adjacent districts or owning the control of the stock in such charters. The Spring Brook Water Supply Company, Scranton Gas and Water Company, and Springfield Consolidated water Company are the most important consolidations of this class.

Municipalities have purchased 24 water companies.

Following are lists of (1) Incorporated Water Companies; (2) Mergers and Consolidations by Purchase; (3) Active Companies; (4) Municipal Water Works.

TABLE NO. 1.

Complete List of Water and Water Power Companies.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Aaronsburg Water Company,	Jan. 29, 1844,	Aaronsburg, Centre Co.,	Active.
Abington Water Company,	Nov. 8, 1900,	Abington Township, Montgomery Co.,	Active.
Acker Water Supply Company,	Mar. 14, 1905,	Howe Township, Perry Co.,	Sold to Nekoda Water Supply Company.
Acme Water Company,	May 11, 1904,	Crafton Borough, Allegheny Co.,	Affidavit of dissolution.
Adams Water Company,	Sept. 9, 1902,	Adams Township, Cambria Co.,	Merged into Beaverdale Water Company.
Agnes Water Company of Cresson,	Oct. 22, 1903,	Cresson Township, Cambria Co.,	Not in operation.
Agnew Water Company,	Feb. 24, 1903,	Conway Borough, Beaver Co.,	Never operated.
Albion Water Company,	Feb. 3, 1902,	Albion Borough, Erie Co.,	Never operated.
Albion Water Company,	May 29, 1908,	Albion Borough, Erie Co.,	Not in operation.
Alexandria Water and Water Power Company,	June 30, 1902,	Porter Township, Huntingdon Co.,	Sold to Juniata Water & Water Power Company.
Allaire Water Company,	July 5, 1901,	Moon Township, Beaver Co.,	Active
Allegheny Mountain Water Company,	Jan. 15, 1900,	Lilly Borough, Gallitzin and Washington Townships Cambria Co.,	Sold to Mountain Spring Water Company, now Summit Water Supply Company.
Allegheny Township Water Company,	July 20, 1900,	Allegheny Township, Westmoreland Co.,	Not in operation.
Allegheny Township Water Company,	Nov. 9, 1900,	Allegheny Township, Cambria Co.,	Sold to Cambria Water Supply Company.
Allegheny Valley Water Company,	April 17, 1906,	Cheswick Borough, Allegheny Co.,	Active.
Allegheny Water Company, (The)	April 22, 1892,	Logan Township, Blair Co.,	Active.
Allen Spring Water Company,	Dec. 11, 1901,	Allen Township, Cumberland Co.,	Merged into Riverton Cons. Water Company.
Allen Water Company,	Oct. 25, 1897,	Allen Township, Washington Co.,	Affidavit of dissolution.
Allen & East Allen Water Company,	Oct. 3, 1902,	East Allen Township, Northampton Co.,	Affidavit of dissolution.
Allen Crane Water Company,	June 25, 1901,	Allen Township, Northampton Co.,	Merged into the Clear Springs Water Company.
Allentown Water Company,	Jan. 29, 1850,	Allentown Borough, Lehigh Co.,	Bought by City.
Allen Township Water Company,	June 26, 1901,	Allen Township, Northampton Co.,	Affidavit of dissolution.
Alliance Water Company,	June 11, 1901,	Alliance Borough, Northampton Co.,	Merged into the Clear Springs Water Company.
Alliquippa Water Company,	Aug. 1, 1901,	Alliquippa Borough, Beaver Co.,	Affidavit of dissolution.
Altamonte Water Supply Company,	Dec. 17, 1903,	Gallitzin Borough, Cambria Co.,	Not in operation.
Altman Water Company,	April 24, 1903,	Black Lick Township, Indiana Co.,	Affidavit of dissolution.
Altoona Gas and Water Company,	May 6, 1859,	Altoona Borough, Blair Co.,	Sold to City in 1872.
Ambler Spring Water Company,	May 23, 1892,	Ambler Borough, Montgomery Co.,	Active.
Ambridge Water Company,	Jan. 15, 1903,	Harmony Township, Beaver Co.,	Sold to Harmony Water Company.
American Spring Water Company,	Aug. 22, 1902,	East Lampeter Township, Lancaster Co.,	Not in operation.
Amity Water Company,	Nov. 26, 1900,	Mifflin Township, Allegheny Co.,	Affidavit of dissolution.
Anderson Water Company,	Aug. 5, 1903,	Allegheny Township, Cambria Co.,	Not in operation.
Angelica Water and Ice Company,	May 3, 1875,	Cumru Township, Berks Co.,	Active.
Annville Water Company,	Sept. 11, 1889,	Annville Village, Lebanon Co.,	Active.
Annville Water Company,	Sept. 23, 1889,	Annville Village, Lebanon Co.,	Affidavit of dissolution.

Ansonville Water Company, (The)	Sept. 22, 1890,	Ansonville, Clearfield Co.,	Active.
Anthracite Valley Water Company,	Mar. 25, 1904,	Carbondale Township, Lackawanna Co.,	Active.
Anthracite Water Company, (The)	Apr. 3, 1882,	Mahanoy Township, Schuylkill Co.,	Active.
Anthracite Water Company of Coal Township,	May 18, 1885,	Coal Township, Northumberland Co.,	Active.
Antis Water Company,	Mar. 11, 1905,	Antis Township, Blair Co.,	Sold to Blair Gap Water Supply Company
Apollo Springs Water Company, (The)	May 1, 1893,	Pittsburgh City, Allegheny Co.,	Dissolved.
Apollo Water Works, Company, (The)	June 7, 1884,	Apollo Borough, Armstrong Co.,	Active.
Arcadia Water Company,	Jan. 30, 1901,	Montgomery Township, Indiana Co.,	Active.
Archbald Water Company, (The)	Oct. 11, 1875,	Achbald Village, Luzerne Co.,	Active.
Arizona Water Company,	July 22, 1904,	Emsworth Borough, Allegheny Co.,	Sold to the Ohio Valley Water Company.
Arlington Water Company,	Oct. 14, 1902,	Scott Township, Allegheny Co.,	Has done no work.
Armagh Water Power Company,	Aug. 26, 1901,	Armagh Township, Mifflin Co.,	Affidavit of dissolution.
Armstrong Water Company,	Aug. 27, 1886,	Kittanning Borough, Armstrong Co.,	Active.
Arnot Water Company, (The)	Sept. 14, 1897,	Bloss Township, Tioga Co.,	Active.
Artesian Water Company,	July 9, 1883,	Carbondale Borough, Lackawanna Co.,	Not in operation.
Artesian Water Company,	Dec. 14, 1899,	Lackawanna Co.,	Not in operation.
Artesian Water Company of Wilkinsburg,	Apr. 16, 1902,	Wilkinsburg Borough, Allegheny Co.,	Merged into the Pennsylvania Water Company.
Arydale Water Supply Company,	Mar. 11, 1905,	Brady Township, Huntingdon Co.,	Sold to the Greenmont Water Supply Company.
Ashland Gas and Water Company,	Mar. 4, 1865,	Ashland Borough, Schuylkill Co.,	Not in operation.
Askam Water Company,	Jan. 29, 1896,	Warrior Run Borough, Luzerne Co.,	Has done no work.
Aspinwall Water Company,	Feb. 14, 1896,	Aspinwall Borough, Allegheny Co.,	Dissolved.
Asylum Water Power Company,	Sept. 17, 1909,	Asylum Township, Bradford Co.,	Not in operation.
Atglen Water Company,	Mar. 25, 1904,	Atglen Borough, Chester Co.,	Active.
Auburn Water Company, (The)	Sept. 20, 1897,	Auburn Borough, Schuylkill Co.,	Active.
Aughwick Water Company,	Feb. 4, 1905,	Mount Union Borough, Huntingdon Co.,	Has done no work.
Avoca Borough Water Company,	July 16, 1901,	Avoca Borough, Luzerne Co.,	Active.
Avondale Water Company,	May 13, 1901,	Avondale Borough, Chester Co.,	Active.
Avonmore Water Company,	July 10, 1901,	Avonmore Borough, Westmoreland Co.,	Has done no work.
Axleton Water Company,	Sept. 29, 1902,	Forward Township, Allegheny Co.,	Active.
Baden Water Company,	Mar. 31, 1902,	Baden Borough, Beaver Co.,	Affidavit of dissolution.
Bakerton Water Company,	Aug. 5, 1901,	Carroll Township, Cambria Co.,	Active.
Bald Eagle Water Company,	Aug. 2, 1897,	Tyrone Borough, Blair Co.,	Active.
Baldwin Water Company,	Mar. 9, 1899,	Baldwin Township, Allegheny Co.,	Affidavit of dissolution.
Bangor Water Company, (The)	June 17, 1884,	Bangor, Northampton Co.,	Active.
Banksville Water Company,	May 20, 1904,	Union Township, Allegheny Co.,	Active.
Bark Water Company,	Mar. 29, 1889,	Pike Township, Clearfield Co.,	Never operated.
Barnesboro Water Company,	Sept. 30, 1896,	Barnesboro, Cambria Co.,	Dissolved.
Barnesboro Water Company,	Aug. 7, 1899,	Barnesboro, Cambria Co.,	Active.
Barree Water Supply Company,	Mar. 11, 1905,	Porter Township, Huntingdon Co.,	Sold to the Trout Run Water Supply Company.
Bath Water and Power Company, (The)	Apr. 11, 1899,	Bath Boro, Northampton Co.,	Affidavit of dissolution.
Beachmont Water Company,	Nov. 26, 1900,	Collier Township, Allegheny Co.,	Affidavit of dissolution.
Bear Creek Water Company,	Nov. 19, 1903,	Bear Creek Township, Luzerne Co.,	Not in operation.
Bear Gap Water Company.	Jan. 15, 1889,	Mt. Carmel Township, Northumberl'd Co.,	Active.
Beaver Brook Water Company,	Jan. 22, 1896,	Beaver Brook Village, Luzerne Co.,	Active.
Beaver Creek Water Company,	Oct. 24, 1900,	Swatara Township, Dauphin Co.,	Active.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Beaverdale Water Company,	Oct. 18, 1904,	Adams and Summerhill Townships, Cambria Co., (merger).	Sold to the Summit Water Supply Company.
Beaverdale Water Company,	Sept. 28, 1900,	Summerhill Township, Cambria Co.,	Merged into the Beaverdale Water Company.
Beaverdam Water Company,	Dec. 5, 1902,	Gallitzin Township, Cambria Co.,	Active.
Beaver Falls Water Company,	Apr. 2, 1870,	Beaver Falls, Beaver Co.,	Not in operation.
Beaver Falls Water Power Company,	Apr. 10, 1867,	Beaver Co.,	Active.
Beaver Meadow Water Company, (The)	June 19, 1893,	Banks Township, Carbon Co.,	Active.
Beaver River Power Company,	Aug. 13, 1897,	Beaver Co.,	Never operated.
Beaver Springs Water Company,	Sept. 9, 1904,	Beaver Springs Village, Snyder Co.,	Active.
Beavertown Water Company,	Sept. 9, 1904,	Beavertown Village, Snyder Co.,	Has done no work.
Beaver Valley Water Company,	June 28, 1899,	Beaver Co.,	Active.
Beaver Valley Water Company,	Nov. 1, 1901,	Economy Township, Beaver Co.,	Active.
Beaver Valley Water Power Company,	Apr. 30, 1902,	Beaver Co.,	Active.
Beaver Water Power Company,	June 21, 1889,	Beaver Co.,	Not in operation.
Bedford Water Company,	May 6, 1850,	Bedford Borough, Bedford Co.,	Not in operation.
Beech Cliff Water Company,	June 29, 1904,	Baldwin Township, Allegheny Co.,	Active.
Beechwood Water Company,	Jan. 17, 1905,	West Liberty Borough, Allegheny Co.,	Active.
Belle Vernon Water Company,	May 22, 1892,	Belle Vernon Borough, Fayette Co.,	Has done no work.
Belle Vernon Water Company,	Aug. 27, 1894,	Belle Vernon Borough, Fayette Co.,	Merged into the Belle Vernon Water Company.
Belle Vernon Water Company,	May 4, 1908,	Fayette and Westmoreland Cos. (merger),	Active.
Belleville Water Company,	Oct. 6, 1902,	Union Township, Mifflin Co.,	Active.
Bellevue Water Company,	Oct. 18, 1888,	Bellevue, Lackawanna Co.,	Active.
Bellevue Water Company,	July 5, 1892,	Bellevue Borough, Allegheny Co.,	Sold to the Valley Consolidated Water Company.
Bell Water Company, (The)	Mar. 14, 1893,	Sabbath Rest Village, Blair Co.,	Has done no work.
Bellwood Water Company,	Mar. 29, 1888,	Bellwood Borough, Blair Co.,	Sold to the Logan Valley Water Company.
Bellwood Water Works Company,	Aug. 3, 1893,	Bellwood Borough, Blair Co.,	Active.
Belmont Water Company,	Dec. 30, 1901,	Fell Township, Lackawanna Co.,	Active.
Beltzhoover Water Company, (The)	June 27, 1892,	Beltzhoover Borough, Allegheny Co.,	Sold to the St. Clair Water Company.
Belvoir Water Company,	Nov. 29, 1904,	Antis Township, Blair Co.,	Sold to the Blair Gap Water Supply Company.
Ben Avon Valley Water Company,	May 27, 1903,	(Merger) Allegheny Co.,	Has done no work.
Ben Avon Valley Water Company,	May 28, 1902,	Ben Avon Borough, Allegheny Co.,	Merged into the Ben Avon Valley Water Company.
Ben Avon Water Company,	Aug. 25, 1896,	Ben Avon Borough, Allegheny Co.,	Not in operation.
Bennett Water Company,	Jan. 3, 1888,	Millvale Borough, Allegheny Co.,	Affidavit of dissolution.
Ben's Creek Water Company,	Feb. 16, 1905,	Portage Township, Cambria Co.,	Active.
Benton Water Company,	May 24, 1900,	Benton Borough, Columbia Co.,	Not in operation.
Benwood Water Company,	Apr. 8, 1903,	Stowe Township, Allegheny Co.,	Sold to the Ohio Valley Water Company.

Berlin Water Company,	Dec. 13, 1901,	Berlin Borough, Somerset Co.,	Active.
Berryhill-Klondike-McCoy Spring Water Company,	Sept. 29, 1902,	Connellsville Township, Fayette Co.,	Never operated.
Berrysburg Water Company,	Apr. 19, 1850,	Berrysburg, Dauphin Co.,	Not in operation.
Berry Springs Water Company,	Jan. 20, 1909,	Upper Paxton Township, Dauphin Co.,	Active.
Berwick Water Company,	Jan. 27, 1818,	Berwick, Columbia Co.,	Active.
Berwyn Water Company,	July 23, 1895,	Easttown Township, Chester Co.,	Sold to North Springfield Water Company.
Bessemer Water Company,	Oct. 30, 1901,	Masontown Borough, Fayette Co.,	Affidavit of dissolution.
Bethany Water Company,	Jan. 21, 1828,	Bethany, Wayne Co.,	Has done no work.
Bethel Water Company,	July 20, 1904,	Bethel Township, Alegheny Co.,	Active.
Bethlehem City Water Company,	Sept. 10, 1903,	Bethlehem Township, Northampton Co.,	Active.
Bethlehem Consolidated Water Company,	Apr. 18, 1902,	Merger (Lehigh and Northampton Cos.)	Sold to Bethlehem City Water Company.
Bethlehem Consolidated Water Company,	Jan. 7, 1902,	Bethlehem Township, Northampton Co.,	Merged into Bethlehem Cons. Water Company.
Bethlehem, South, Gas and Water Company, (The)	Apr. 13, 1864,	So. Bethlehem and village adjoining in Saucon, Salisbury and Hanover Townships, Lehigh and Northampton Cos.,	Merged into Bethlehem Cons. Water Company.
Bethlehem Water Company,	Feb. 24, 1845,	Bethlehem, Northampton Co.,	Sold to municipality.
Biglerville Water Company,	Sept. 5, 1908,	Biglerville Borough, Adams Co.,	Active.
Big Run Water Company,	May 28, 1900,	Big Run Borough, Jefferson Co.,	Active.
Birdsboro Water Company,	Mar. 19, 1900,	Birdsboro, Berks Co.,	Active.
Black Bear Water Company,	Dec. 19, 1907,	Morris Township, Clearfield Co.,	Active.
Black Lick Water Company,	Dec. 28, 1900,	Black Lick Township, Cambria Co.,	Active.
Blackwood Water Company,	Oct. 6, 1904,	Reilly Township, Schuylkill Co.,	Active.
Blair Gap Water Supply Company,	Jan. 30, 1905,	Merger (Blair Co.),	Active.
Blair Water Power Company,	Mar. 11, 1905,	Snyder Township, Blair Co.,	Has done no work.
Blaisdall Water Company, (The)	Feb. 26, 1892,	Bradford Township, McKean Co.,	Affidavit of dissolution.
Blakeley Water Company, (The)	Jan. 22, 1884,	Blakeley Borough, Lackawanna Co.,	Active.
Blakely Water Company,	Jan. 17, 1889,	Blakeley Borough, Lackawanna Co.,	Has done no work.
Blandsburg Water Company,	Jan. 19, 1905,	Reade Township, Cambria Co.,	Active.
Bloomfield Water and Power Company, (The)	July 27, 1893,	Bloomfield Borough, Perry Co.,	Active.
Bloomsburg Water Company, (The)	Sept. 27, 1879,	Bloomsburg, Columbia Co.,	Active.
Blossburg Water Company, (The)	Sept. 14, 1891,	Blossburg Borough, Tioga Co.,	Active.
Blue Knob Water Supply Company,	Jan. 4, 1905,	Juniata Township, Blair Co.,	Merged into Blair Gap Water Supply Company.
Blue Mountain Consolidated Water Company,	Dec. 9, 1902,	(Merger) Northampton Co.,	Active.
Blue Mountain Water Supply Company,	Sept. 28, 1900,	Smithfield Township, Monroe Co.,	Not in operation.
Blue Ridge Water Supply Company,	Aug. 1, 1906,	Washington Township, Franklin Co.,	Active.
Blue Ridge Water Supply Company,	Oct. 31, 1902,	Walnutport Village, Northampton Co.,	Active.
Blue Water Company,	Sept. 18, 1907,	N. Belle Vernon Bor., Westmoreland Co.,	Merger into Belle Vernon Water Company.
Boalsburg Water Company,	Sept. 2, 1902,	Boalsburg, Centre Co.,	Active.
Boliver Water Company,	Aug. 10, 1887,	Boliver Borough, Westmoreland Co.,	Affidavit of dissolution.
Borough of Chartiers Water Company,	Dec. 12, 1893,	Chartiers Borough, Allegheny Co.,	Sold to Monongahela Water Company.
Borough Water Company,	Sept. 24, 1889,	Montrose Borough, Susquehanna Co.,	Never operated.
Borough Water Company,	Apr. 8, 1890,	Rochester Borough, Beaver Co.,	Affidavit of dissolution.
Borough Water Power Company,	Sept. 17, 1909,	Towanda Borough, Bradford Co.,	Not in operation.
Boyertown Water Company,	Apr. 18, 1856,	Boyertown, Berks Co.,	Sold to municipality.
Braddock Water Company,	Nov. 18, 1882,	Braddock Borough, Allegheny Co.,	Not in operation.
Bradford County Water Company,	Mar. 3, 1904,	Sayre Borough, Bradford Co.,	Never operated.
Bradford Water Works Company, (The)	June 29, 1877,	Bradford Borough, McKean Co.,	Sold to municipality.

TABLE NO. 1--Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Brady Water Company,	June 15, 1903,	East Brady, Clarion Co.,	Never operated.
Branch Water Company,	Mar. 18, 1903,	(Merger) Indiana Co.,	Affidavit of dissolution.
Branch Water Company,	Mar. 9, 1903,	Green Township, Indiana Co.,	Merged into Branch Water Company.
Brandenville Water Company,	Apr. 16, 1904,	Derry Township, Westmoreland Co.,	Never operated.
Brandywine Water Company, (The)	May 20, 1891,	North Lebanon Township, Lebanon Co.,	Not in operation.
Briar Creek Water Supply Company,	Mar. 25, 1904,	Briar Creek Township, Columbia Co.,	Active.
Briar Creek Water Company,	May 9, 1901,	Briar Creek Township, Columbia Co.,	Has done no work.
Bridgeport Water Company, (The)	Aug. 25, 1886,	Bridgeport Borough, Montgomery Co.,	Active.
Bridgeport Water Company, (The)	July 18, 1892,	Bridgeport Borough, Fayette Co.,	Merged into Brownsville Water Company.
Bridgeville Water Company,	Nov. 26, 1900,	Upper St. Clair Township, Allegheny Co.,	Affidavit of dissolution.
Bridgewater Water Company,	June 25, 1888,	Bridgewater Borough, Beaver Co.,	Never operated.
Bright Run Water Company,	Sept. 18, 1907,	Butler Township, Schuylkill Co.,	Not in operation.
Brinton Water Company,	Nov. 11, 1901,	Penn Township, Westmoreland Co.,	Merged into Trafford Water Company.
Bristol Township Water Supply Company,	Dec. 5, 1904,	Bristol Township, Bucks Co.,	Has done no work.
Bristol Water Company, (The)	Aug. 19, 1874,	Bristol, Bucks Co.,	Active.
Bristol Water Improvement Company,	Dec. 5, 1904,	Bristol Borough, Bucks Co.,	Not in operation.
Broad Mountain Water Company, (The)	Mar. 31, 1898,	Mahanoy City Borough, Schuylkill Co.,	Active.
Brockway Crystal Water Company (The)	Oct. 28, 1897,	Brockwayville Borough, Jefferson Co.,	Active.
Brookville Water Company,	Apr. 20, 1846,	Brookville, Jefferson Co.,	Not in operation.
Brookville Water Company, (The)	Aug. 8, 1883,	Brookville Borough, Jefferson Co.,	Active.
Brownsville Water Company,	July 15, 1889,	Brownsville Borough, Fayette Co.,	Not in operation.
Brownsville Water Company, (The)	July 18, 1892,	Brownsville Borough, Fayette Co.,	Merged into Brownsville Water Company.
Brownsville Water Company,	Sept. 3, 1901,	(Merger) Fayette and Washington Cos.,	Active.
Brush Run Water Company,	Oct. 22, 1900,	Mt. Pleasant Township, Westmoreland Co.	Active.
Bryn Mawr Water Company,	Apr. 6, 1892,	Lower Merion Township, Montgomery Co.	Sold to Springfield Water Company.
Buck Hill Water Company,	Apr. 14, 1902,	Barrett Township, Monroe Co.,	Active.
Bucks County Water and Water Power Company, (The)	Mar. 27, 1899,	Solebury Township, Bucks Co.,	Never operated.
Buck Township Water Cimpany,	Apr. 27, 1905,	Buck Township, Luzerne Co.,	Never operated.
Buckwha Water, Storage and Supply Company,	Dec. 17, 1901,	Lo. Towamensing Township, Carbon Co.,	Affidavit of dissolution.
Buffington Water Company,	Dec. 28, 1900,	Buffington Township, Indiana Co.,	Active.
Bundy's Water Company,	Feb. 24, 1898,	Linesville Borough, Crawford Co.,	Active.
Burnham Water Company,	Dec. 1, 1899,	Derry Township, Mifflin Co.,	Sold to Reedsville Water Company.
Burrell Township Water Company,	Apr. 2, 1903,	Burrell Township, Indiana Co.,	Affidavit of dissolution.
Bushkill Power Company,	Feb. 26, 1904,	Middle Smithfield Township, Monroe Co.,	Has done no work.
Bushkill Water Company,	July 7, 1908,	Lehman Township, Pike Co.,	Active.

Butcher Spring Water Company, (The)	Mar. 5, 1894,	St. Clair Borough, Schuylkill Co.,	Active.
Butler Water Company, (The)	Nov. 2, 1877,	Butler Borough, Butler Co.,	Active.
Cacalico Water Company, (The)	Jan. 28, 1892,	Ephrata Township, Lancaster Co.,	Affidavit of dissolution.
California Water Company,	Apr. 22, 1897,	California, Washington Co.,	Has done no work.
California Water Company, (The)	May 2, 1899,	California, Coal Centre, Elco, Roscoe, Stockdale and Allenport Boroughs and East Pike Run and Allen Townships, Washington Co.	Active.
California Water Company of California, (The)	Sept. 26, 1894,	California Borough, Washington Co.,	Affidavit of dissolution.
Caln Water Company,	June 1, 1903,	Caln Township, Chester Co.,	Merged into Octoraro Water Company.
Calvin Water Supply Company,	Mar. 11, 1905,	Union Township, Huntingdon Co.,	Sold to Greenmont Water Supply Company.
Cambria County Water Supply Company,	Feb. 16, 1900,	Cambria Co.,	Active.
Cambridge Springs Water Company,	June 6, 1898,	Cambridge Sprgs. Borough, Crawford Co.,	Never operated.
Campbells Ledge Water Supply Company,	Oct. 1, 1894,	Wyoming and Lackawanna Valleys, Luzerne Co.	Never operated.
Camp Hill Spring Water Company, (The)	Oct. 19, 1897,	Camp Hill Borough, Cumberland Co.,	Affidavit of dissolution.
Camp Hill Water Company,	Apr. 15, 1895,	Camp Hill Borough, Cumberland Co.,	Affidavit of dissolution.
Campus Water Company,	Sept. 29, 1908,	State College Borough, Centre Co.,	Not in operation.
Canadensis Water Company,	Mar. 2, 1903,	Barrett Township, Monroe Co.,	Active.
Canawacta Water Supply Company,	Nov. 24, 1899,	Susquehanna Co.,	Active.
Cannonsburg Water Company,	Nov. 13, 1894,	Cannonsburg Borough, Washington Co.,	Affidavit of dissolution.
Canoe Township Water Company,	Feb. 10, 1903,	Canoe Township, Indiana Co.,	Has done no work.
Cansandra Water Supply Company,	Mar. 11, 1905,	Washington Township, Cambria Co.,	Sold to Mountain Springs Water Company, now Summit Water Supply Company.
Canton Township Water Company,	Mar. 7, 1901,	Canton Township, Washington Co.,	Affidavit of dissolution.
Canton Water Company, (The)	Sept. 20, 1877,	Canton Borough, Bradford Co.,	Not in operation.
Capous Water Company, (The)	June 24, 1895,	Scranton City, Lackawanna Co.,	Active.
Carbondale Citizens' Water Company,	Mar. 26, 1900,	Wayne, Lackawanna and Susquehanna Cos.	Never operated.
Carbondale City Water Company,	Mar. 21, 1866,	Carbondale, Lackawanna Co.,	Not in operation.
Carbondale Consumers Water Company, (The)	May 24, 1892,	Carbondale City, Lackawanna Co.,	Has done no work.
Carbondale Water Company, (The)	July 27, 1891,	Carbondale Township, Lackawanna Co.,	Active.
Carlisle Gas and Water Company,	Apr. 19, 1853,	Carlisle, Cumberland Co.,	Active.
Carlisle Water Company, (The)	Oct. 3, 1895,	Carlisle, Cumberland Co.,	Ruled out of existence by Supreme Court.
Carnegie Water Company,	May 20, 1904,	Carnegie Borough, Allegheny Co.,	Active.
Carrick Water Company,	Nov. 26, 1900,	Baldwin Township, Allegheny Co.,	Affidavit of dissolution.
Caseakee Water Company of Taylor Township,	Oct. 22, 1902,	Taylor Township, Lawrence Co.,	Dissolved.
Caseaskee Water Company of N. Beaver Township,	Nov. 7, 1902,	North Beaver Township, Lawrence Co.,	Dissolved.
Cashtown Water Company, (The)	Nov. 15, 1894,	Cashtown, Adams Co.,	Active.
Castle Shannon Water Company,	Oct. 14, 1902,	Baldwin Township, Allegheny Co.,	Has done no work.
Catasauqua Water Company,	June 26, 1901,	Catasauqua Borough, Lehigh Co.,	Affidavit of dissolution.
Catawissa Water Company, (The)	June 29, 1882,	Catawissa Village, Columbia Co.,	Active.
Cecil Water Company,	May 29, 1901,	Cecil Township, Washington Co.,	Sold to North Strabane Water Company.
Center Hall Water Company,	Mar. 17, 1858,	Center Hall, Centre Co.,	Active.
Centerville Water Company,	Apr. 8, 1848,	Centerville, Crawford Co.,	Has done no work.
Central Colliery Water Company,	July 16, 1901,	Moosic Borough, Lackawanna Co.,	Active.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Centralia Water Company,	Mar. 30, 1866,	Centralia, Columbia Co.,	Not in operation.
Centralia Water Company,	Oct. 7, 1904,	Centralia Borough, Columbia Co.,	Active.
Central Water Company,	Dec. 5, 1904,	Menallen Township, Fayette Co.,	Active.
Center Water Company,	Nov. 18, 1902,	Center Township, Columbia Co.,	Never operated.
Centre Water Company of Centre Township,	Apr. 24, 1903,	Centre Township, Indiana Co.,	Affidavit of dissolution.
Century Water Company,	Jan. 15, 1900,	Neville Township, Allegheny Co.,	Affidavit of dissolution.
Chambersburg Water Company,	Mar. 24, 1817,	Chambersburg, Franklin Co.,	Not in operation.
Chambersburg Water Company,	Jan. 31, 1849,	Chambersburg, Franklin Co.,	Never operated.
Chanceford Water and Power Company,	May 23, 1902,	Chanceford Township, York Co.,	Merger into Susquehanna Storage, Lake and Power Company.
Charleroi Water Company,	June 17, 1890,	Fallowfield Township, Washington Co.,	Active.
Chartiers Township Water Company,	May 29, 1901,	Chartiers Township, Washington Co.,	Sold to the North Strabane Water Company.
Chartiers Valley Water Company,	Jan. 17, 1887,	Chartiers Township, Allegheny Co.,	Has done no work.
Chartiers Valley Water Company,	June 24, 1895,	McKees Rocks Borough, Allegheny Co.,	Not in operation.
Chartiers Valley Water Company,	July 30, 1896,	Allegheny Co.,	Active.
Chartiers Water Company,	Jan. 17, 1887,	Chartiers Borough, Allegheny Co.,	Has done no work.
Chartiers Water Company,	July 2, 1889,	Chartiers Borough, Allegheny Co.,	Never operated.
Cheltenham Water Company,	Mar. 14, 1889,	Abington Township, Montgomery Co.,	Not in operation.
Chelten Hills Water and Gas Company,	Mar. 26, 1859,	Abington and Cheltenham Townships, Montgomery Co.	Not in operation.
Cherryhill Township Water Company,	Feb. 10, 1903,	Cherryhill Township, Indiana Co.,	Has done no work.
Cherryhill Water Company,	Apr. 23, 1903,	Cherryhill Township, Indiana Co.,	Has done no work.
Cherrytree Water Company,	July 9, 1903,	Cherrytree Borough, Indiana Co.,	Active.
Chester Creek Pure Water Company,	July 16, 1902,	Aston Township, Delaware Co.,	Affidavit of dissolution.
Chester Creek Water Company,	July 16, 1902,	Middletown Township, Delaware Co.,	Affidavit of dissolution.
Chester Hill Water Company,	June 28, 1901,	Chester Hill Borough, Clearfield Co.,	Dissolved.
Chestnut Hill Water Company,	Apr. 24, 1856,	Chestnut Hill, Philadelphia Co.,	Sold to City of Philadelphia.
Chatham Water Company,	Aug. 22, 1901,	Oak Grove, Clinton Co.,	Active.
Chestnut Ridge Water Company,	Jan. 17, 1905,	Green Tree Borough, Allegheny Co.,	Active.
Cheswick Water Company,	Aug. 14, 1900,	Springdale Township, Allegheny Co.,	Active.
Chichester Water Company,	Dec. 19, 1907,	Marcus Hoook Borough, Delaware Co.,	Active.
Christiana Gravity Water Company, (The)	July 31, 1894,	Christiana Borough, Lancaster Co.,	Active.
Citizens Gas and Water Company,	Apr. 9, 1872,	Scranton, Lackawanna Co.,	Not in operation.
Citizens Water Company, (The)	Feb. 16, 1882,	Coudersport, Potter Co.,	Sold to Consolidated Water Company.
Citizens Water Company, (The)	July 20, 1883,	Canton Borough, Bradford Co.,	Active.
Citizens Water Company,	Sept. 3, 1889,	Dorranceton Borough, Luzerne Co.,	Active.
Citizens Water Company,	Feb. 7, 1890,	Braddock Township, Allegheny Co.,	Merged into **Pennsylvania Water Company.**

Citizens Water Company,	July 20, 1904,	Merger, Center Co.,	Active.
Citizens Water Company of Beaver Meadow, (The)	July 9, 1895,	Banks Township, Carbon Co.,	Active.
Citizens Water Company of Brownsville,	Oct. 3, 1901,	Brownsville Borough, Fayette Co.,	Has done no work.
Citizens Water Company of Coburn,	Dec. 4, 1901,	Coburn Village, Center Co.,	Active.
Citizens Water Company of Confluence,	Sept. 9, 1904,	Confluence Borough, Somerset Co.,	Active.
Citizens Water Company of Darby, (The)	Mar. 7, 1892,	Darby Borough, Delaware Co.,	Sold to Springfield Water Company.
Citizens Water Company of Dauphin Borough,	Jan. 30, 1901,	Dauphin Borough, Dauphin Co.,	Merged into Dauphin Cons. Water Supply Company.
Citizens Water Company of DuBois,	May 18, 1883,	DuBois Borough, Clearfield Co.,	Not in operation.
Citizens Water Company of Frackville, Pa.,	May 26, 1902,	Frackville Borough, Schuylkill Co.,	Affidavit of dissolution.
Citizens Water Company of Gordon,	Oct. 9, 1888,	Gordon Village, Schulykill Co.,	Active.
Citizens Water Company of Haverford Township,	Aug. 26, 1901,	Haverford Township, Delaware Co.,	Sold to Springfield Water Company.
Citizens Water Company of Hyndman,	Dec. 4, 1902,	Hyndman Borough, Bedford Co.,	Has done no work.
Citizens Water Company of Kittanning,	Apr. 22, 1905,	Kittanning Borough, Armstrong Co.,	Sold to Armstrong Water Company.
Citizens Water Company of Laceyville, (The)	Oct. 23, 1893,	Laceyville Borough, Wyoming Co.,	Dissolved.
Citizens Water Company of Lewistown,	Mar. 11, 1901,	Lewistown Borough, Mifflin Co.,	Merged into Lewistown-Reedsville Water Company.
Citizens Water Company of McDonald, Pa., (The)	Sept. 21, 1893,	McDonald Borough, Washington Co.,	Active.
Citizens Water Company of Middle Paxton Twp.,	Jan. 30, 1901,	Middle Paxton Township, Dauphin Co.,	Merged into Dauphin Consolidated Water Supply Company.
Citizens Water Company of Milton,	June 15, 1900,	Milton Borough, Northumberland Co.,	Active.
Citizens Water Company of New Bethlehem, (The)	Aug. 16, 1882,	New Bethlehem Borough, Clarion Co.,	Merged into Citizens Water Company of New Bethlehem.
Citizens Water Company of New Bethlehem,	Nov. 30, 1904,	Merger, Armstrong and Clarion Cos.,	Active.
Citizens Water Company of Philipsburg, (The).	Jan. 19, 1897,	Philipsburg Borough, Center Co.,	Merged into Citizens Water Company.
Citizens Water Company of Pittsburg, (The)	Nov. 18, 1892,	Pittsburg City, Allegheny Co.,	Has done no work.
Citizens Water Company of Scottdale,	July 17, 1888,	Scottdale Borough, Westmoreland Co.,	Active.
Citizens Water Company of Susquehanna Township,	Jan. 30, 1901,	Susquehanna Township, Dauphin Co.,	Merged into Dauphin Consolidated Water Supply Company.
Citizens Water Company of Tower City, (The)	June 6, 1893,	Tower City, Schuylkill Co.,	Active.
Citizens Water Company of Tremont,	Jan. 27, 1905,	Tremont Borough, Schuylkill Co.,	Never operated.
Citizens Water Company of Wapwallopen, Pa.,	June 13, 1894,	Wapwallopen, Luzerne Co.,	Active.
Citizens Water Company of Washington, Pa., (The).	Jan. 7, 1886,	Washington Borough, Washington Co.,	Active.
Citizens Water Company of West Sadsbury, Pa.,	June 1, 1903,	West Sadsbury Township, Chester Co.,	Merged into Octoraro Water Company.
Citizens Water Company of Whitemarsh Township,	June 20, 1898,	Whitemarsh Township, Montgomery Co.,	Sold to N. Springfield Water Company.
Citizens Water Company of Wilkes-Barre, (The)	Dec. 31, 1894,	Wilkes-Barre City, Luzerne Co.,	Not in operation.
Citizens Water and Gas Light Company of Scranton, Pa., (The).	May 3, 1864,	Scranton, Hyde Park and Dunmore, Lackawanna Co.	Not in operation.
Citizens Water and Gas Company of Williamsport,	Mar. 24, 1865,	Williamsport, Newberry and Jaysburg, Lycoming Co.	Active.
City of New Castle Water Company, (The)	Mar. 8, 1881,	New Castle City, Lawrence Co.,	Merged into City of New Castle Water Company.
City of New Castle Water Company,	Aug. 15, 1902,	Merger, Lawrence Co.,	Active.
City Water Company of Homestead, (The)	Apr. 5, 1886,	Homestead Borough, Allegheny Co.,	Never operated.
City Water Company of Scranton,	Sept. 10, 1903,	Scranton City, Lackawanna Co.,	Not in operation.
Clarion Water Company,	Mar. 3, 1887,	Clarion Borough, Clarion Co.,	Active.
Clark's Summit Water Company, (The)	Feb. 14, 1893,	So. Abington Township, Lackawanna Co.,	Active.
Clear Brook Water Company,	Sept. 3, 1889,	Kingston Township, Luzerne Co.,	Active.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Clearfield Water Company, (The)	Jan. 3, 1882,	Clearfield, Clearfield Co.,	Active.
Clear Springs Water Company, (The)	May 15, 1899,	Lehigh and Northampton Cos.,	Merged into Clear Springs Water Company.
Clear Springs Water Company,	Apr. 10, 1902,	Merger, Lehigh and Northampton Cos.,	Active.
Clear Spring Water Company,	July 3, 1900,	Jackson Township, Monroe Co.,	Not in operation.
Clearview Water Supply Company,	Mar. 11, 1905,	Milford Township, Juniata Co.,	Active.
Cleona Water Company,	Apr. 6, 1909,	North Lebanon Township, Lebanon Co.,	Active.
Clifton Heights Water Company, (The)	Mar. 24, 1886,	Clifton Heights Borough, Delaware Co.,	Sold to Springfield Water Company.
Clifton Springs Water Company,	Nov. 8, 1900,	Clifton Township, Lackawanna Co.,	Not in operation.
Clifton Water Company,	Jan. 13, 1886,	Clifton Borough, Delaware Co.,	Has done no work.
Clinton Water Company, (The)	Mar. 12, 1891,	Clinton Township, Wayne Co.,	Not in operation.
Clinton Water Company,	Nov. 8, 1901,	Pine Creek Township, Clinton Co.,	Affidavit of dissolution.
Cloverdale Water Company,	Apr. 23, 1903,	Grant Township, Indiana Co.,	Never operated.
Clymer Water Company of Indiana,	Apr. 26, 1886,	Indiana Borough, Indiana Co.,	Active.
Clymer Water Company of West Indiana,	Apr. 26, 1886,	West Indiana Borough, Indiana Co.,	Sold to Clymer Water Company of Indiana.
Clymer Water Company of White Township,	Apr. 13, 1903,	White Township, Indiana Co.,	Never operated.
Coal Center Water Company,	Apr. 22, 1897,	Coal Center, Washington Co.,	Has done no work.
Coal Center Water Company,	Oct. 18, 1900,	Coal Center Borough, Washington Co.,	Sold to California Water Company.
Coal Center Water Works Company,	Mar. 7, 1907,	Coal Center Borough, Washington Co.,	Sold to California Water Company.
Coalport Water Company,	June 20, 1892,	Coalport Borough, Clearfield Co.,	Never operated.
Coburn Water Company,	Sept. 13, 1900,	Coburn Village, Center Co.,	Active.
Codorus Water Company,	Sept. 18, 1900,	Delano Township, Schuylkill Co.,	Active.
Cold Spring Water Company,	Mar. 8, 1900,	St. Clair Borough, Blyth and East Norwegian Townships, Schuylkill Co.,	Not in operation.
Cold Spring Water Company,	July 17, 1901,	Chester Hill Borough, Clearfield Co.,	Active.
Cold Spring Water Company,	Mar. 29, 1870,	Titusville, Crawford Co.,	Never operated.
Cold Spring Water Company of New Brighton,	Apr. 2, 1860,	New Brighton, Beaver Co.,	Not in operation.
Cold Stream Water Company,	July 6, 1896,	Philipsburg Borough, Center Co.,	Affidavit of dissolution.
Colemanville Water and Power Company,	Sept. 9, 1904,	Conestoga Township, Lancaster Co.,	Active.
Colerain Water Company,	June 1, 1903,	Colerain Township, Lancaster Co.,	Merged into Octoraro Water Company.
Colfax Water Company,	Feb. 10, 1903,	Grant Township, Indiana Co.,	Has done no work.
College Hill Borough Water Company,	May 15, 1901,	College Hill Borough, Beaver Co.,	Active.
College Hill Water Company,	Jan. 13, 1897,	College Hill Borough, Beaver Co.,	Affidavit of dissolution.
College Hill Water Company of Beaver Falls,	June 17, 1902,	College Hill Borough, Beaver Co.,	Never operated.
Collier Water Supply Co.,	July 20, 1904,	Collier Township, Allegheny Co.,	Active.
Collier Water Company, (The)	Jan. 17, 1887,	Collier Township, Allegheny Co.,	Has done no work.
Collingdale Water Company, (The)	Dec. 22, 1892,	Collingdale Borough, Delaware Co.,	Sold to Springfield Water Company.

Colonia Water Company,	Oct. 22, 1901,	Moon Township, Beaver Co.,	Affidavit of dissolution.
Colorado Water Company,	July 22, 1904,	Ben Avon Borough, Allegheny Co.,	Sold to Ohio Valley Water Company.
Columbia Water Company,	Mar. 29, 1823,	Columbia, Lancaster Co.,	Active.
Commercial Water Company,	Apr. 23, 1903,	Greene Township, Indiana Co.,	Not in operation.
Conemaugh and Franklin Water Company, (The)	May 16, 1893,	Conemaugh Borough, Cambria Co.,	Merged into Conemaugh and Franklin Water Company.
Conemaugh and Franklin Water Company,	Mar. 7, 1907,	Merger, Cambria Co.,	Active.
Conemaugh Water Company,	Apr. 9, 1872,	Blairsville, Indiana Co.,	Not in operation.
Conestoga Water and Power Company,	May 23, 1902,	Conestoga Township, Lancaster Co.,	Merged into Susquehanna Storage, Lake and Power Company.
Conestoga Water Company,	June 1, 1903,	Conestoga Township, Lancaster Co.,	Merged into Octoraro Water Company.
Conewago Water and Power Company, (The)	Nov. 15, 1894,	Columbia, Lancaster Co.,	Affidavit of dissolution.
Confluence Water Company,	May 18, 1903,	Confluence Borough, Somerset Co.,	Affidavit of dissolution.
Connellsville and New Haven Gas and Water Company.	Mar. 7, 1871,	Connellsville and New Haven Boroughs, Fayette Co.	Not in operation.
Connellsville Water Company, (The)	Mar. 21, 1883,	Connellsville Borough, Fayette Co.,	Active.
Connellsville Water Supply Company,	Apr. 14, 1905,	Connellsville Township, Fayette Co.,	Sold to High Ridge Water Supply Company.
Conner Water Company,	Feb. 24, 1905,	Cambria Township, Cambria Co.,	Not in operation.
Conoy Water and Power Company, (The)	July 17, 1896,	Conoy Township, Lancaster Co.,	Affidavit of dissolution.
Conshohocken Gas and Water Company,	May 12, 1871,	Conshohocken, Montgomery Co.,	Active.
Consolidated Water Company, (The)	Dec. 23, 1896,	Fayette and Washington Cos.,	Merged into Brownsville Water Company.
Consolidated Water Company of Coudersport,	July 26, 1900,	Coudersport Borough, Potter Co.,	Active.
Consolidated Water Supply Company,	Feb. 28, 1899,	Lackawanna, Luzerne and Susquehanna Cos.	Active.
Consumers Water Company,	Feb. 6, 1889,	Norristown Borough, Montgomery Co.,	Has done no work.
Consumers Water Company of Franklin Township, Westmoreland Co.	Dec. 8, 1903,	Franklin Township, Westmoreland Co.,	Active.
Consumers Water Company of Honesdale,	June 20, 1902,	Honesdale Borough Wayne Co.,	Merged into Honesdale Cons. Water Company.
Consumers Water Company of Marple Township,	Aug. 26, 1901,	Marple Township, Delaware Co.,	Sold to Springfield Water Company.
Consumers Water Company of Montrose, Pa., (The).	Aug. 31, 1892,	Montrose Borough, Susquehanna Co.,	Active.
Consumers Water Company of North Huntingdon Township, Westmoreland Co.	June 15, 1900,	North Huntingdon Township, Westmoreland Co.	Active.
Consumers Water Company of Plymouth Township,	June 20, 1898,	Plymouth Township, Montgomery Co.,	Sold to N. Springfield Water Company.
Consumers Water Company of Upper Darby, (The)	Mar. 7, 1892,	Upper Darby Township, Delaware Co.,	Sold to Springfield Water Company.
Consumers Water Company of Wilkes-Barre,	Oct. 1, 1894,	Wilkes-Barre City, Luzerne Co.,	Has done no work.
Contiguous Water Company,	Mar. 14, 1889,	Cheltenham Township, Montgomery Co.,	Not in operation.
Conyingham Water Company, (The)	Jan. 3, 1880,	Conyngham Village, Luzerne Co.,	Active.
Cook Township Water Company,	May 20, 1903,	Cook Township, Westmoreland Co.,	Has done no work.
Coplay Water Company,	Mar. 18, 1901,	Coplay Borough, Lehigh Co.,	Merged into Clear Springs Water Company.
Coraopolis Water Company, (The)	Mar. 3, 1890,	Coraopolis Borough, Allegheny Co.,	Affidavit of dissolution.
Core Creek Water Power Company,	Jan. 28, 1901,	Yardley, Bucks Co.,	Affidavit of dissolution.
Corry Gas and Water Company,	Mar. 2, 1866,	Corry, Erie Co.,	Never operated as water company.
Corry Water Supply Company,	Jan. 24, 1884,	Corry City, Erie Co.,	Active.
Cove Creek Water Company,	Apr. 14, 1905,	Penn Township, Perry Co.,	Affidavit of dissolution.
Covedale Water Company,	Feb. 4, 1905,	Woodbury Township, Blair Co.,	Affidavit of dissolution.
Cove Water Company,	May 29, 1903,	Penn Township, Perry Co.,	Never operated.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Crafton Water Company,	July 2, 1889,	Chartiers Township, Allegheny Co.,	Dissolved.
Crane Water Company,	Aug. 14, 1895,	Catasauqua Borough, Lehigh Co.,	Merged into Clear Springs Water Company.
Creekside Water Company,	July 31, 1907,	Creekside Borough, Indiana Co.,	Active.
Crescent Beach Water Company, (The)	Apr. 6, 1899,	Shannopin Village, Beaver Co.,	Active.
Crescent Water Company,	Mar. 16, 1900,	Crescent Township, Allegheny Co.,	Not in operation.
Crescent Water Company of Chartiers Township,	Dec. 29, 1892,	Chartiers Township, Allegheny Co.,	Has done no work.
Cresco Water Company,	Oct. 12, 1900,	Barrett Township, Monroe Co.,	Affidavit of dissolution.
Cresson Water Company, (The)	June 29, 1896,	Cresson Township, Cambria Co.,	Active.
Cross Fork Water Company, (The)	Oct. 31, 1894,	Stewardson Township, Potter Co.,	Active.
Croyle Township Water Company,	Nov. 9, 1900,	Croyle Township, Cambria Co.,	Sold to Cambria Co. Water Supply Company.
Croyle Water Supply Company,	Mar. 11, 1905,	Croyle Township, Cambria Co.,	Sold to Mountain Springs Water Company, now Summit Water Supply Company.
Crystal Gas and Water Company,	Apr. 10, 1867,	Venango City, Venango Co.,	Not in operation.
Crystal Lake Water Company,	Aug. 19, 1867,	Carbondale Township, Luzerne Co.,	Active.
Crystal Pure Water Company,	Nov. 29, 1905,	Mill Hall Borough, Clinton Co.,	Active.
Crystal Spring Water Company,	Apr. 11, 1866,	South Wilkes-Barre, Luzerne Co.,	Active.
Crystal Spring Water Company,	Apr. 29, 1874,	Downingtown, Chester Co.,	Not in operation.
Crystal Springs Park Water Company,	Mar. 7, 1907,	Highland Township, Elk Co.,	Active.
Crystal Springs Water Company, (The)	May 5, 1893,	Austin Borough, Potter Co.,	Affidavit of dissolution.
Crystal Water Company, (The)	July 2, 1890,	Cass Township, Schuylkill Co.,	Active.
Crystal Water Company,	Apr. 24, 1893,	Tidioute Borough, Warren Co.,	Affidavit of dissolution.
Cumberland Water Company,	Apr. 15, 1895,	Boiling Springs Village, Cumberland Co.,	Sold to Carlisle Water Company.
Cummings Lake Water Supply Company,	July 19, 1898,	Wyoming Valley, Luzerne Co.,	Has done no work.
Curwensville Water Company,	Mar. 29, 1889,	Curwensville Borough, Clearfield Co.,	Active.
Dallastown Water Company, (The)	Apr. 14, 1896,	Dallastown Borough, York Co.,	Merged into York Co. Cons. Water Company.
Dallas Water Company,	Aug. 21, 1893,	Dallas Borough, Luzerne Co.,	Active.
Danielsville Water Company,	Nov. 14, 1901,	Lehigh Township, Northampton Co.,	Never operated.
Danville Water Company,	Mar. 26, 1867,	Danville, Montour Co.,	Has done no work.
Darby Water Company,	Jan. 13, 1886,	Darby Borough, Delaware Co.,	Affidavit of dissolution.
Dauphin Consolidated Water Supply Company,	June 9, 1903,	Merger, Cumberland and Dauphin Cos.,	Active.
Dauphin Water Company, (The)	Feb. 29, 1892,	Dauphin Borough, Dauphin Co.,	Affidavit of dissolution.
Dawson Water Supply Company,	Dec. 9, 1903,	Gallitzin Township, Cambria Co.,	Sold to Mountain Springs Water Company, now Summit Water Supply Company.
Doylesford Water Company of Pennsylvania,	Aug. 15, 1889,	Tredyffrin Township, Chester Co.,	Affidavit of dissolution.
Dayton-Greenfield Water Company,	Nov. 21, 1907,	Williams Township, Dauphin Co.,	Active.
Dean Water Supply Company,	Sept. 21, 1904,	Dean Township, Cambria Co.,	Sold to Mountain Springs Water Company, now Summit Water Supply Company.
Decatur Water Company,	July 17, 1901,	Decatur Township, Clearfield Co.,	Active.

Deep Creek Water Company,	Nov. 8, 1895,	Mt. Carmel Township, Northumberl'd Co.	Affidavit of dissolution.
Deer Creek Water and Water Power Company,	Dec. 17, 1903,	Stewartstown Borough, York Co.,	Not in operation.
Deep Rock Water Company,	Aug. 27, 1901,	Croyle Township, Cambria Co.,	Not in operation.
Delano Water Company,	Nov. 13, 1901,	Delano Township, Schuylkill Co.,	Active.
Delaware River Power Company,	June 25, 1896,	Morrisville Borough, Bucks Co.,	
Delaware Water Gap Water Power Company,	Aug. 26, 1902,	Smithfield Township, Monroe Co.,	Has done no work.
Delaware Water Company,	Jan. 11, 1886,	Darby Township, Delaware Co.,	Never operated.
Delta Water Power Company,	Oct. 29, 1906,	Lower Chanceford Township, York Co.,	Active.
Denison Township Water Company,	Oct. 27, 1904,	Denison Township, Luzerne Co.,	Has done no work.
Derry Township Water Company,	June 26, 1884,	Derry Township, Westmoreland Co.,	Sold to Latrobe Water Company.
Derry Water Company, (The)	May 4, 1887,	Derry Borough, Westmoreland Co.,	Active.
Derry Water Company,	Jan. 3, 1899,	Derry Township, Dauphin Co.,	Not in operation.
Devon Water Company, (The)	Apr. 13, 1893,	Easttown Township, Chester Co.,	Affidavit of dissolution.
Dewey Water Company,	June 20, 1898,	Upper Merion Township, Montgomery Co.,	Sold to N. Springfield Water Company.
Diamond Water Company of Hazleton,	June 24, 1887,	Hazleton, Luzerne Co.,	Active.
Dickson City Water Company,	Jan. 17, 1889,	Dickson City Borough, Lackawanna Co.,	Active.
Dillsburg Water Company,	July 18, 1901,	Dillsburg Borough, York Co.,	Active.
Dingmans Ferry Water Company,	Sept. 1, 1909,	Delaware Township, Pike Co.,	Not in operation.
Disston Water Company,	July 12, 1887,	Tacony, Philadelphia, Pa.,	Active.
Domestic Water Company,	Feb. 11, 1902,	Carroll Township, Washington Co.,	Active.
Donegal Township Water Company,	Mar. 16, 1904,	Donegal Township, Westmoreland Co.,	Affidavit of dissolution.
Donohoe Water Company,	Aug. 8, 1902,	Salem Township, Westmoreland Co.,	Active.
Donora Water Company,	Oct. 3, 1900,	Carroll Township, Washington Co.,	Active.
Downingtown Gas and Water Company,	Mar. 22, 1867,	Dowiningtown, Chester Co.,	Not in operation.
Drifton Water Company, (The)	June 19, 1893,	Hazle Township, Luzerne Co.,	Active.
Driftwood Water Company,	Sept. 19, 1899,	Driftwood Borough, Cameron Co.,	Active.
Drumore Water and Power Company,	May 23, 1902,	Drumore Township, Lancaster Co.,	Merged into Susquehanna River Power Company.
Dubois City Water Works Company, (The)	Apr. 28, 1890,	DuBois Borough, Clearfield Co.,	Sold to municipality.
DuBois Water Company, (The)	Mar. 4, 1887,	DuBois Borough, Clearfield Co.,	Affidavit of dissolution.
DuBois Water Company,	May 16, 1889,	DuBois Borough, Clearfield Co.,	Not in operation.
Dunbar Water Company,	Jan. 30, 1902,	Dunbar Borough, Fayette Co.,	Has done no work.
Dunbar Water Supply Company,	Jan. 15, 1900,	Fayette and Westmoreland Cos.,	Active.
Dunbar Water Supply Company,	Dec. 5, 1904,	Dunbar Township, Fayette Co.,	Active.
Duncannon Home Water Company,	July 10, 1893,	Duncannon Borough, Perry Co.,	Affidavit of dissolution.
Duncannon Water Company, (The)	Sept. 24, 1891,	Duncannon, Perry Co.,	Affidavit of dissolution.
Dunlap Water Company,	Nov. 28, 1906,	Redstone Township, Fayette, Co.,	Dissolved.
Dunlo Water Company,	Apr. 21, 1897,	Dunlo, Cambria Co.,	Dissolved.
Dunmore Gas and Water Company,	Apr. 5, 1867,	Dunmore, Luzerne Co.,	Active.
Duquesne Water Company,	Apr. 13, 1888,	Pittsburgh, Allegheny Co.,	Not in operation.
Duquesne Water Company,	June 17, 1892,	Duquesne Borough, Allegheny Co.,	Affidavit of dissolution.
Duesquesne Water Company No. 2,	Jan. 22, 1895,	Duquesne Borough, Allegheny Co.,	Affidavit of dissolution.
Dushore Water Company, (The)	Aug. 8, 1893,	Dushore, Sullivan Co.,	Active.
Eagles Mere Water Company,	Feb. 11, 1901,	Eagles Mere Borough, Sulivan Co.,	Active.
East Brady Water Company,	Apr. 13, 1893,	East Brady Borough, Clarion Co.,	Never operated.
East Brady Water Company,	Apr. 23, 1895,	East Brady Borough, Clarion Co.,	Active.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
East Buffalo Water Company,	Oct. 19, 1900,	East Buffalo Township, Union Co.,	Active.
East Butler Water Company,	May 1, 1908,	Summit Township, Butler Co.,	Active.
East Deer Township Water Company, (The)	Sept. 23, 1897,	East Deer Township, Allegheny Co.,	Merged into Tarentum Water Company.
East End Water Company,	Aug. 11, 1902,	Scott Township, Columbia Co.,	Has done no work.
East End Water Company of Logan Township,	Sept. 24, 1903,	Logan Township, Blair Co.,	Has done no work.
Eastern Water Power Company, (The)	Jan. 11, 1899,	Philadelphia Co.,	Has done no work.
East Harrisburg Water Company,	Apr. 15, 1895,	East End Village, Dauphin Co.,	Affidavit of dissolution.
East Lebanon Water Company, (The)	Apr. 2, 1891,	North Lebanon Township, Lebanon Co.,	Not in operation.
East Mauch Chunk Water Company,	Feb. 16, 1860,	East Mauch Chunk, Carbon Co.,	Active.
East McKeesport Water Company,	June 30, 1896,	East McKeesport Borough, Allegheny Co.,	Active.
Eastmere Water Company, (The)	Jan. 19, 1899,	East End Village, Dauphin Co.,	Active.
Easton Water Company,	Mar. 24, 1817,	Easton, Northampton Co.,	Active.
East Pennsboro Water Company,	Dec. 9, 1901,	East Pennsboro Township, Cumberland Co.	Merged into Riverton Consolidated Water Co.
East Pittsburgh Water Company,	Jan. 10, 1888,	N. Versailles Township, Allegheny Co.,	Merged into Pennsylvania Water Company.
East Stroudsburg Water Company,	Mar. 29, 1889,	East Stroudsburg Borough, Monroe Co.,	Never operated.
Easttown Water Company,	May 25, 1887,	Easttown Township, Chester Co.,	Affidavit of dissolution.
East Tyrone Water Company, (The)	May 23, 1892,	East Tyrone Borough, Blair Co.,	Sold to Tyrone Gas and Water Company.
Eastvale Water Company,	Mar. 31, 1902,	Eastvale Borough, Beaver Co.,	Not in operation.
East Washington Water Company,	Feb. 25, 1901,	E. Washington Borough, Washington Co.,	Sold to Citizens Water Company of Washington.
East Wheatfield Water Company,	Dec. 28, 1900,	East Wheatfield Township, Indiana Co.,	Active.
East Whiteland Water Company,	July 23, 1895,	East Whiteland Township, Chester Co.,	Sold to N. Springfield Water Company.
Economical Water Company of Schuylkill Haven,	Sept. 28, 1887,	Schuylkill Haven Borough, Schuylkill Co.	Never operated.
Economy Water Company,	June 4, 1902,	Harmony Township, Beaver Co.,	Affidavit of dissolution.
Eddystone Water Company, (The)	Apr. 19, 1887,	Ridley Township, Delaware Co.,	Sold to New Chester Water Company.
Eddystone Water Company, (The)	Dec. 22, 1892,	Eddystone Borough, Delaware Co.,	Active.
Edge Hill Water Company,	Dec. 24, 1894,	Springfield Township, Montgomery Co.,	Affidavit of dissolution.
Edgemont Water Company,	Mar. 4, 1908,	Chester Township, Delaware Co.,	Active.
Edgeworth Extension Water Company,	Aug. 6, 1900,	Franklin, Ohio, and Sewickley Townships, Allegheny Co.	Affidavit of dissolution.
Edgemont Water Company, (The)	June 20, 1883,	Leet Township, Allegheny Co.,	Active.
Edna Water Company,	July 2, 1903,	Hempfield Township, Westmoreland Co.,	Active.
Edwardsville Water Company,	Sept. 3, 1889,	Edwardsville Borough, Luzerne Co.,	Active.
Eighth Ward Water Company of Johnstown, Pa.,	Apr. 17, 1906,	Eighth Ward of Johnstown City, Cambria Co.	Never operated.
Eldred Water Company,	June 5, 1899,	Eldred Borough, McKean Co.,	Sold to Pike Mills Water Company, of Galeton, now Galeton-Eldred Water Company.
Elizabethtown Water Company, (The)	Jan. 4, 1895,	Elizabethtown Borough, Lancaster Co.,	Active.
Elizabethville Water Company,	Sept. 9, 1889,	Elizabethville, Dauphin Co.,	Active.

Elizabeth Water Company,	July 17, 1895,	Elizabeth Borough, Allegheny Co.,	Sold to Monongahela Valley Water Company.
Elliott Water Company,	June 24, 1895,	Elliott Borough, Allegheny Co.,	Affidavit of dissolution.
Ellwood Power Company,	Oct. 19, 1900,	Ellwood City Borough, Lawrence Co.,	Sold to Pennsylvania Power Company.
Ellwood Water Company,	July 27, 1892,	Wayne Township, Lawrence Co.,	Active.
Elm Water Company,	Apr. 13, 1893,	Lower Merion Township, Montgomery Co.	Affidavit of dissolution.
Elmhurst Water Company, (The)	Jan. 11, 1892,	Elmhurst Borough, Lackawanna Co.,	Dissolved.
Emlentown Water Company,	Apr. 14, 1879,	Emlentown Borough, Venango Co.,	Active.
Emporium Water Company,	July 15, 1886,	Emporium Borough, Cameron Co.,	Active.
Emsworth Valley Water Company,	May 28, 1902,	Emsworth Borough, Allegheny Co.,	Merged into Ben Avon Valley Water Company.
Enola Water Company,	Feb. 6, 1903,	East Pennsboro Township Cumberland Co.	Sold to Dauphin Consolidated Water Company.
Enterprise Water Company,	June 26, 1901,	Hanover Township, Lehigh Co.,	Affidavit of dissolution.
Enterprise Water Company of Delaware Company,	Aug. 6, 1901,	Upper Darby Township, Delaware Co.,	Affidavit of dissolution.
Ephrata Water Company, (The)	1879,	Ephrata Village, Lancaster Co.,	Sold to municipality.
Erie Water and Gas Company,	Mar. 16, 1865,	Erie, Erie Co.,	Never operated.
Esplen Water Company,	June 24, 1895,	Esplen Borough, Allegheny Co.,	Affidavit of dissolution.
Etna Water Works,	June 21, 1888,	Etna Borough, Allegheny Co.,	Dissolved.
Eureka Water Works,	May 11, 1904,	Chartiers Township, Allegheny Co.,	Affidavit of dissolution.
Evans City Water Company, (The)	May 12, 1891,	Evansburg Borough, Butler Co.,	Sold to city.
Everett Crystal Water Company, (The)	Oct. 7, 1892,	Everett Borough, Bedford Co.,	Has done no work.
Everett Water Company, (The)	Feb. 3, 1885,	Everett Borough, Bedford Co.,	Dissolved.
Everett Water Company,	Sept. 27, 1888,	Everett Borough, Bedford Co.,	Active.
Everson Water Company,	Mar. 22, 1901,	Upper Tyrone Township, Fayette Co.,	Sold to Citizens Water Company of Scottdale.
Excelsior Water Company,	May 11, 1904,	Esplen Borough, Allegheny Co.,	Affidavit of dissolution.
Extension Water Company,	Aug. 18, 1902,	Penbrook, Dauphin Co.,	Dissolved.
Extension Water Company of Penbrook,	Dec. 1, 1908,	Penbrook Borough, Dauphin Co.,	Active.
Fairchance Water Company,	Oct. 27, 1887,	George Township, Fayette Co.,	Merged into Yonghgahela Water Company.
Fairchance Water Company, (The)	May 26, 1893,	Fairchance Borough, Fayette Co.,	Affidavit of dissolution.
Fairfield Water Company,	Aug. 10, 1887,	Fairfield Township, Westmoreland Co.,	Affidavit of dissolution.
Fairmont Water Company,	Nov. 19, 1901,	Red Bank Township, Clarion Co.,	Affidavit of dissolution.
Fairview Spring Water Company,	May 2, 1900,	Palmer Township, Northampton Co.,	Affidavit of dissolution.
Fairview Township Water Company,	Dec. 31, 1903,	Fairview Township, York Co.,	Merged into Riverton Consolidated Water Company.
Fairview Water Company,	Apr. 28, 1903,	Athens Borough, Bradford Co.,	Never operated.
Fairview Water Company,	July 12, 1906,	Mt. Pleasant Township, Westmoreland Co.	Never operated.
Fairview Water Company,	Sept. 10, 1900,	Mt. Pocono Village, Monroe Co.,	Active.
Fall Brook and Newton Water Company,	Nov. 24, 1891,	Carbondale City, Lackawanna Co.,	Active.
Falling Spring Water Company, (The)	June 25, 1894,	Marcy Township, Luzerne Co.,	Affidavit of dissolution.
Falls Creek Water Company,	Nov. 12, 1894,	Falls Creek Village, Clearfield Co.,	Affidavit of dissolution.
Falls Creek Water Company,	Jan. 28, 1902,	Falls Creek Borough, Jefferson Co.,	Never operated.
Fallston Water Company,	Apr. 8, 1848,	Fallston, Beaver Co.,	Active.
Fallston Water Company,	Mar. 31, 1902,	Fallston Borough, Beaver Co.,	Active.
Farmers Water Company,	May 20, 1904,	Mifflin Township, Allegheny Co.,	Active.
Fayette City Water Company,	Nov. 15, 1897,	Fayette City Borough, Fayette, Co.,	Affidavit of dissolution.
Fayette City Water Company,	Nov. 18, 1903,	Fayette City Borough, Fayette, Co.,	Merged into Fayette City Water Company.
Fayette City Water Company,	May 30, 1906,	Merger, Fayette Co.,	Active.
Fayetteville Water Company,	Nov. 4, 1897,	Fayetteville, Franklin Co.,	Active.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Fayette Water Company, (The)	Oct. 26, 1896,	Lower Tyrone Township, Fayette Co.,	Dissolved.
Federal Water Company,	Nov. 26, 1900,	South Fayette Township, Allegheny Co.,	Active.
Fell Water Company, (The)	Mar. 12, 1891,	Fell Township, Lackawanna Co.,	Not in operation.
Fern Bank Water Company,	Feb. 5, 1908,	Cresson Borough, Cambria Co.,	Not in operation.
Fernbrook Water Company,	Nov. 18, 1903,	Carbondale City, Lackawanna Co.,	Active.
Findley Run Water Supply Company,	Apr. 14, 1905,	East Wheatfield Township, Indiana Co.,	Active.
Finleyville Water Company,	Mar. 9, 1903,	Finleyville Borough, Washington Co.,	Affidavit of dissolution.
Flat Rock Water Company,	Aug. 27, 1901,	Adams Township, Cambria Co.,	Active.
Fleetwood Water Company,	Sept. 5, 1889,	Fleetwood Borough, Berks Co.,	Sold to municipality.
Fleming Park Water Company,	July 18, 1901,	Fleming Park and Stowe Township, Allegheny Co.	Sold to Benwood Water Company.
Flint Hill Water Company,	Dec. 15, 1879,	Bowers Station, Berks Co.,	Active.
Florence Water Company,	Apr. 1, 1901,	New Florence Borough, Westmoreland Co.	Affidavit of dissolution.
Florida Water Company,	Oct. 14, 1904,	Glenfield Borough, Allegheny Co.,	Has done no work.
Forestville Water Company, (The)	Dec. 17, 1890,	Cass Township, Schuylkill Co.,	Active.
Forest Water Company,	Aug. 27, 1901,	Croyle Township, Cambria Co.,	Active.
Forest Water Company of Young Township,	Apr. 24, 1903,	Young Township, Indiana Co.,	Affidavit of dissolution.
Forty Fort Water Company, (The)	June 1, 1891,	Forty Fort Borough, Luzerne Co.,	Active.
Forward Township Water Company,	Aug. 6, 1902,	Forward Township, Allegheny Co.,	Affidavit of dissolution.
Forward Water Company,	Mar. 18, 1905,	Jenner Township, Somerset Co.,	Never operated.
Foxburg Water Works Company,	June 29, 1877,	Foxburg Village, Clarion Co.,	Active.
Frackville Water Company,	July 22, 1901,	Frackville, Schuylkill Co.,	Affidavit of dissolution.
Frailey Water Company,	Apr. 14, 1905,	Frailey Township, Schuylkill Co.,	Active.
Franklin Extended Water Company,	Feb. 28, 1902,	Franklin Extended, Cambria Co.,	Affidavit of dissolution.
Franklin Township Water Company,	Apr. 22, 1903,	Franklin Township, Fayette Co.,	Active.
Franklin Water Company, (The)	Aug. 4, 1891,	East Franklin Township, Armstrong Co.,	Active.
Frankstown Township Water Company,	Jan. 4, 1905,	Frankstown Township, Blair Co.,	Never operated.
Fredricksburg Water Company,	Nov. 26, 1886,	Fredericksburg, Lebanon Co.,	Active.
Fredericktown Water Company,	Sept. 1, 1903,	East Bethlehem Township, Washington Co.	Active.
Freeburg Water Company,	Feb. 9, 1905,	Washington Township, Snyder Co.,	Has done no work.
Freedom Water Company,	July 1, 1890,	Freedom Borough, Beaver Co.,	Sold to Valley Water Company.
Freedom Water Company,	Apr. 8, 1897,	Freedom Borough, Beaver Co.,	Active.
Freeland Water Company, (The)	July 20, 1883,	Freeland Borough, Luzerne Co.,	Active.
Freemansburg Water Company,	July 1, 1901,	Freemansburg Borough, Northampton Co.	Affidavit of dissolution.
Freeport Water Works Company,	Jan. 12, 1883,	Freeport Borough, Armstrong Co.,	Active.
French Creek Water Power Company,	July 11, 1899,	Chester Co.,	Not in operation.

Fulton Water and Power Company,	May 23, 1902,	Fulton Township, Lancaster Co.,	Merged into Susquehanna River Power Company.
Furnace Water Company,	Sept. 18, 1907,	Burrell Township, Indiana Co.,	Active.
Galeton-Eledred Water Company,	Nov. 1, 1894,	Galeton Village, Potter Co.,	Active.
Galeton Water Company,	Oct. 25, 1894,	Galeton Village, Potter Co.,	Dissolved.
Galeton Water Company, (The)	Jan. 3, 1899,	Galeton Borough, Potter Co.,	Affidavit of dissolution.
Gallatin Water Company,	Nov. 11, 1901,	N. Versailles Township, Allegheny Co.,	Merged into Trafford Water Company.
Gallitzin Water Company,	Aug. 20, 1888,	Gallitzin Borough, Cambria Co.,	Active.
Garfield Water Company,	Dec. 19, 1900,	West Wheatfield Township, Indiana Co.,	Active.
Garrett Water Company,	Aug. 5, 1903,	Garrett Borough, Somerset Co.,	Active.
General Water Company,	May 30, 1906,	Redstone Township, Fayette Co.,	Active.
Genesee Citizens Water Company,	June 28, 1906,	Genesee Township, Potter Co.,	Active.
Georges Water Company,	Dec. 5, 1904,	Georges Township, Fayette Co.,	Affidavit of dissolution.
Germania Water Company,	May 20, 1904,	Mt. Oliver Borough, Allegheny Co.,	Active.
German Township Water Company,	Dec. 5, 1904,	German Township, Fayetter Co.,	Affidavit of dissolution.
Germantown Water Company,	Mar. 29, 1851,	Germantown, Philadelphia Co.,	Sold to City of Philadelphia.
Gettysburg Water Company,	Apr. 29, 1823,	Gettysburg, Adams Co.,	Active.
Gilberton-Schuylkill Water Company,	Oct. 21, 1909,	Gilberton Borough, Schuylkill Co.,	Not in operation.
Gilberton Water Company of Schuylkill Co., (The)	May 19, 1885,	Gilberton Borough, Schuylkill Co.,	Not in operation.
Girardville Water Company,	Oct. 21, 1909,	Girardville Borough, Schuylkill Co.,	Not in operation.
Girard Water Company,	May 18, 1894,	Girard Borough, Erie Co.,	Dissolved.
Girard Water Company of Schuylkill Co., (The)	Aug. 29, 1883,	West Mahanoy Township, Schuylkill Co.,	Active.
Gladehurst Water Company,	Jan. 4, 1906,	Somerset Township, Somerset Co.,	Active.
Glenbrook Water Company,	Mar. 16, 1904,	Conyngham Township, Luzerne Co.,	Never operated.
Glen Cairn Water Company,	Feb. 6, 1901,	Allegheny Township, Westmoreland Co.,	Affidavit of dissolution.
Glenfield Water Company, (The)	Aug. 20, 1897,	Glenfield Borough, Allegheny Co.,	Has done no work.
Glenside Water Company, (The)	July 7, 1898,	Glenside, Edge Hill and Weldon Villages, Montgomery Co.	Sold to N. Springfield Water Company.
Glenside Water Company,	Nov. 11, 1902,	Bern Township, Berks Co.,	Active.
Glen Water Company, (The)	Jan. 23, 1899,	Glen Campbell Borough, Indiana Co.,	Active.
Glen Water Company,	Feb. 5, 1901,	Glenfield Borough, Allegheny Co.,	Has done no work.
Glen Water Supply Company,	Jan. 4, 1905,	Logan Township, Blair Co.,	Merged into Blair Gap Water Supply Company.
Glenwood Water Company,	Jan. 24, 1890,	Mayville Borough, Lackawanna Co.,	Has done no work.
Good Spring Water Company, (The)	Oct. 25, 1893,	Porter Township, Schuylkill Co.,	Active.
Goodwin Water Company,	July 20, 1904,	Upper St. Clair Township, Allegheny Co.	Active.
Grampian Water Company,	Aug. 6, 1902,	Grampian Borough, Clearfield Co.,	Never operated.
Granite Water Company, (The)	July 12, 1892,	Big Mine Run Village, Schuylkill Co.,	Affidavit of dissolution.
Grant Township Water Company,	Feb. 10, 1903,	Grant Township, Indiana Co.,	Has done no work.
Grant Water Company,	Nov. 11, 1901,	East Pittsburgh Borough, Allegheny Co.,	Merged in Trafford Water Company.
Granville Water Company,	Oct. 22, 1900,	Granville Township, Mifflin Co.,	Merged into Lewistown-Reedsville Water Company.
Gravel Hill Water Supply Company,	Sept. 17, 1909,	N. Londonderry Township, Lebanon Co.,	Not in operation.
Gravel Run Water Company, (The)	Dec. 8, 1892,	Hazle Township, Luzerne Co.,	Has done no work.
Great Bend Water Company,	Apr. 14, 1892,	Great Bend Borough, Susquehanna Co.,	Active.
Green Briar Water Company,	Oct. 29, 1903,	Conemaugh Township, Cambria Co.,	Active.
Greenburr Water Company,	May 16, 1889,	Greenburr Village, Clinton Co.,	Active.
Greencastle Water Company,	Nov. 15, 1893,	Greencastle, Franklin Co.,	Active.
Greenfield Water Supply Company,	Jan. 4, 1905,	Allegheny Township, Blair Co.,	Merged into Blair Gap Water Supply Company.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Greenmont Water Supply Company,	Mar. 11, 1905,	Henderson Township, Huntingdon Co.,	Never operated.
Greensburg Water Company,	Apr. 1, 1858,	Greensburg, Westmoreland Co.,	Not in operation.
Greensburg Water Company,	June 2, 1884,	Greensburg Borough, Westmoreland Co.,	Never operated.
Green Township Water Company,	Feb. 10, 1903,	Green Township, Indiana Co.,	Has done no work.
Green Tree Water Company,	May 20, 1904,	Green Tree Borough, Allegheny Co.,	Active.
Greenville Gas and Water Company,	Mar. 15, 1872,	Greenville, Mercer Co.,	Never operated.
Greenville Water Company, (The)	Nov. 17, 1883,	Greenville Borough, Mercer Co.,	Active.
Griffin Water Supply Company,	Oct. 30, 1901,	Nicholson Township, Fayette Co.,	Affidavit of dissolution.
Grill Water Company,	May 16, 1904,	Grill Village, Berks Co.,	Active.
Grove City Water Company, (The)	Aug. 14, 1895,	Grove City Borough, Mercer Co.,	Never operated.
Groveton Water Company,	June 24, 1903,	Robinson Township, Allegheny Co.,	Affidavit of dissolution.
Gwendolen Water Company,	Dec. 9, 1903,	Cambria Township, Cambria Co.,	Sold to Summit Water Supply Company.
Halifax Water Company,	Aug. 3, 1897,	Halifax Borough, Dauphin Co.,	Active.
Hallstead Water Company,	Apr. 14, 1892,	Hallstead Borough, Susquehanna Co.,	Active.
Hamburg Water Company, (The)	July 2, 1885,	Hamburg, Berks Co.,	Never operated.
Hamilton Water Company,	Nov. 15, 1904,	Hamilton Township, Monroe Co.,	Active.
Hanover Crane Water Company,	June 25, 1901,	Hanover Township, Lehigh Co.,	Merged into Clear Springs Water Company.
Hanover and McSherrytown Water Company,	Oct. 16, 1895,	Hanover Borough, York Co.,	Active.
Hanover Water Company,	Apr. 25, 1872,	Hanover Borough, York Co.,	Sold to Hanover and McSherrystown Water Company.
Hanover Water Company, (The)	Oct. 5, 1885,	Hanover Township, Luzerne Co.,	Active.
Hares Valley Water Company,	Feb. 4, 1905,	Union Township, Huntingdon Co.,	Not operating.
Harmar Township Water Company,	Apr. 17, 1906,	Harmar Township, Allegheny Co.,	Sold to Allegheny Valley Water Company.
Harmar Water Company, (The)	Nov. 28, 1898,	Harmar Township, Allegheny Co.,	Dissolved.
Harmony Water Company,	May 23, 1902,	Harmony Township, Beaver Co.,	Active.
Harrisburg (Borough) Water Company,	Mar. 10, 1835,	Harrisburg, Dauphin Co.,	Sold to city.
Harrisburg Canal, Insurance and Water Company,	Mar. 27, 1823,	Harrisburg, Dauphin Co.,	Not in operation.
Harrisburg Water Company,	Feb. 14, 1833,	Harrisburg, Dauphin Co.,	Sold to city.
Harrison Township Water Company,	Sept. 23, 1887,	Harrison Township, Allegheny Co.,	Merged into Tarentum Water Company.
Hartley Township Water Company of Hartley Township, Union Co., Pa.,	May 7, 1901,	Hartly Township, Union Co.,	Sold to Shamokin Dam Water Company.
Hartly Water Company of Hartley Township, Union Co., Pa.,	May 7, 1901,	Hartly Township, Union Co.,	Sold to Shamokin Dam Water Company.
Harveys Lake Water Supply Company,	Feb. 11, 1896,	Wyoming Valley, Luzerne Co.,	Active.
Harwood Water Company,	Jan. 17, 1905,	Sheraden Borough, Allegheny Co.,	Active.
Hastings Water Company, (The)	Dec. 3, 1891,	Hastings Borough, Cambria Co.,	Active.
Hatboro Water Company,	Feb. 15, 1897,	Hatboro Borough, Montgomery Co.,	Active.
Haverford Water Company,	Jan. 4, 1886,	Haverford Township, Delaware Co.,	Affidavit of dissolution.

Haverford Water Company, (The)	Nov. 4, 1886,	Haverford, Delaware Co.,	Affidavit of dissolution.
Hawley Water Company,	Dec. 24, 1888,	Hawley Borough, Wayne Co.,	Active.
Haysville Water Company,	Jan. 28, 1898,	Osborne Borough and Aleppo Township, Allegheny Co.	Active.
Hays Water Company,	May 20, 1904,	Hays Borough, Allegheny Co.,	Active.
Hazleburst Water Company,	Sept. 12, 1898,	Hazleburst Village, McKean Co.,	Active.
Hazleton Water Company,	Jan. 8, 1895,	Hazleton City, Luzerne Co.,	Active.
Hazle Water Company,	Dec. 20, 1892,	Lehigh Township, Carbon Co.,	Dissolved.
Hebron Water Company,	Feb. 25, 1903,	South Lebanon Township, Lebanon Co.,	Merged into Weaverstown Water Company.
Hegins Water Company,	Nov. 30, 1909,	Hegins Township, Schuylkill Co.,	Not in operation.
Heidelberg Water Company,	Oct. 19, 1904,	Heidelberg Borough, Allegheny Co.,	Active.
Heights Water Company,	Dec. 22, 1902,	South Lebanon Township, Lebanon Co.,	Active.
Hellam Water Company,	Oct. 11, 1906,	Hellam Township, York Co.,	Active.
Hemlock Water Company,	Mar. 25, 1905,	Washington Township, Cambria Co.,	Affidavit of dissolution.
Hempfield Township Water Company,	June 2, 1884,	Hempfield Township, Westmoreland Co.,	Sold to Greensburg Water Company.
Henrietta Water Company,	May 12, 1902,	Barr Township, Cambria Co.,	Active.
Herndon Water Company,	Mar. 30, 1906,	Herndon Borough, Northumberland Co.,	Active.
Hibbs Water Company,	Feb. 24, 1905,	Menallen Township, Fayette Co.,	Active.
Highland Spring Water Company,	Jan. 3, 1889,	Abington Township, Montgomery Co.,	Not in operation.
Highland Water Company,	Apr. 23, 1903,	Grant Township, Indiana Co.,	Not in operation.
Highland Water Company,	May 20, 1904,	Crafton Borough, Allegheny Co.,	Active.
Highland Water Company of Ridley Township (The).	Mar. 7, 1892,	Ridley Township, Delaware Co.,	Sold to Springfield Water Company.
Highland Water Company of West Newton, Pa., (The)	Jan. 6, 1893,	West Newton Borough, Westmoreland Co.	Has done no work.
High Ridge Water Supply Company,	Mar. 11, 1905,	St. Clair Township, Westmoreland Co.,	Active.
Highspire Water Company,	Nov. 14, 1901,	Highspire Village, Dauphin Co.,	Active.
Hillside Springs Water Company,	Apr. 27, 1905,	Nescopeck Borough, Luzerne Co.,	Affidavit of dissolution.
Hillside Water and Power Company,	Sept. 2, 1902,	Lower Chanceford Township, York Co.,	Merged into McCall Ferry Power Company.
Hill Top Water Company,	Mar. 5, 1903,	Madison Township, Clarion Co.,	Never operated.
Hill Top Water Supply Company,	May 20, 1904,	Knoxville Borough, Allegheny Co.,	Active.
Hollidaysburg Gas and Water Company,	Mar. 16, 1854,	Hollidaysburg, Blair Co.,	Never operated as water company.
Hollidaysburg Water Company,	Mar. 12, 1841,	Hollidaysburg, Blair Co.,	Has done no work.
Hollidaysburg Water Company, (The)	Mar. 16, 1865,	Hollidaysburg, Blair Co.,	Has done no work.
Holmesburg Water Company,	July 19, 1887,	Oxford and Lower Dublin Townships, Philadelphia Co.	Active.
Homestead Borough Water Company,	Oct. 15, 1903,	Homestead Borough, Allegheny Co.,	Affidavit of dissolution.
Homestead Water Company,	Sept. 10, 1888,	Homestead Borough, Allegheny Co.,	Has done no work.
Homestead Water Company,	Apr. 23, 1889,	Homestead Borough, Allegheny Co.,	Affidavit of dissolution.
Homestead Water Company, (The)	Aug. 27, 1883,	Homestead Borough, Allegheny Co.,	Not in operation.
Home Water Company of Royersford,	July 12, 1887,	Spring City Borough, Chester Co.,	Active.
Home Water Company of South Philipsburg, Center Co., Pa.	June 27, 1901,	South Philipsburg, Center Co.,	Active.
Home Water Company,	July 12, 1887,	Royersford Borough, Montgomery Co.,	Active.
Home Water Supply Company,	Mar. 25, 1905,	Logan Township, Blair Co.,	Active.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Honesdale Consolidated Water Company,	Feb. 10, 1905,	Merger, Pike and Wayne Cos.,	Active.
Honesdale Water Company, (The)	Mar. 14, 1850,	Honesdale, Wayne Co.,	Merged into Honesdale Cons. Water Company.
Honey Brook Water Company, (The)	Jan. 17, 1891,	Audenreid, Carbon Co.,	Active.
Hop Bottom Water Company,	May 2, 1892,	Hop Bottom Borough, Susquehanna Co.,	Not in operation.
Hopewell Township Water Company,	Dec. 3, 1907,	Hopewell Township, Beaver Co.,	Not in operation.
Hopewell Water Company,	Aug. 12, 1901,	Hopewell Township, Beaver Co.,	Never operated.
Horton Water Company,	Apr. 13, 1903,	Horton Township, Elk Co.,	Never operated.
Houtzdale Water Company,	Aug. 16, 1887,	Houtzdale, Clearfield Co.,	Active.
Hughestown Borough Water Company,	July 16, 1901,	Hughestown Borough, Luzerne Co.,	Active.
Hughesville Home Water Company,	Dec. 27, 1904,	Hughesville Borough, Lycoming Co.,	Active.
Hughesville Water Company,	June 8, 1888,	Hughesville Borough, Lycoming Co.,	Sold to Hughesville Home Water Company.
Hummelstown Consolidated Water Company,	Sept. 26, 1887,	Hummelstown Borough, Dauphin Co.,	Active.
Hunter Run Water Company,	Aug. 27, 1900,	Lehigh Township, Carbon Co.,	Active.
Huntingdon Water Company, (The)	Sept. 6, 1884,	Huntingdon Borough, Huntingdon Co.,	Affidavit of dissolution.
Huntingdon Water Supply Company,	Oct. 4, 1900,	Huntingdon Borough, Huntingdon Co.,	Active.
Huron Water Company,	Sept. 5, 1899,	German Township, Fayette Co.,	Merged into Youghgahela Water Company.
Hyde Park Gas and Water Company,	Apr. 11, 1866,	Hyde Park, Luzerne Co.,	Not in operation.
Hyde Park Water Company,	July 20, 1900,	Hyde Park Borough, Westmoreland Co.,	Not in operation.
Hyndman Water Company, (The)	Aug. 17, 1891,	Hyndman Borough, Bedford Co.,	Active.
Idaho Water Company,	July 22, 1904,	Bellevue Borough, Allegheny Co.,	Sold to Ohio Valley Water Company.
Idlewood Water Company,	July 10, 1895,	Chartiers Township, Allegheny Co.,	Affidavit of dissolution.
Idlewood Water Company,	Jan. 17, 1905,	Chartiers Township, Allegheny Co.,	Active.
Imperial Water Company,	May 11, 1904,	Carnegie Borough, Allegheny Co.,	Affidavit of dissolution.
Indiana Water Company, (The)	Oct. 8, 1883,	Indiana Borough, Indiana Co.,	Has done no work.
Industrial Water Supply Company,	Feb. 1, 1905,	Adams Township, Cambria Co.,	Sold to Mountain Springs Water Company, now Summit Water Supply Company.
Ingleside Water Company,	Dec. 23, 1892,	Allegheny Township, Westmoreland Co.,	Affidavit of dissolution.
Ingram Water Company,	May 11, 1904,	Ingram Borough, Allegheny Co.,	Affidavit of dissolution.
Interurban Water Company,	Oct. 15, 1903,	Mifflin Township, Allegheny Co.,	Affidavit of dissolution.
Iron City Water Company,	June 17, 1889,	Pittsburgh City, Allegheny Co.,	Has done no work.
Iroquois Water and Power Company,	Oct. 30, 1907,	Miller Township, Perry Co.,	Has done no work.
Iroquois Water Supply Company,	Mar. 11, 1905,	Miller Township, Perry Co.,	Sold to Nekoda Water Supply Company.
Irwin Water Company, (The)	Nov. 3, 1883,	Irwin Borough, Westmoreland Co.,	Affidavit of dissolution.
Irwin Water Company,	Feb. 14, 1889,	Irwin Borough, Westmoreland Co.,	Active.
Ivy View Water Company,	Oct. 9, 1903,	Cresson Township, Cambria Co.,	Active.
Jacks Mountain Water Company,	Feb. 24, 1905,	Mapleton Borough, Huntingdon Co.,	Active.

Jackson Water Company,	Dec. 28, 1900,	Jackson Township, Cambria Co.,	Active.
Jefferson and Mifflin Water Company,	Dec. 10, 1896,	Allegheny Co.,	Sold to Monongahela Valley Water Company.
Jefferson Water Company,	Apr. 23, 1852,	Honesdale, Wayne Co.,	Not in operation.
Jenkins Township Water Company,	July 16, 1901,	Jenkins Township, Luzerne Co.,	Active.
Jenkintown Water Company,	Jan. 7, 1889,	Jenkintown, Montgomery Co.,	Active.
Jenner Water Company,	Oct. 15, 1901,	Jenner Township, Somerset Co.,	Has done no work.
Jermyn and Rush Brook Water Company,	Oct. 16, 1894,	Merger, Lackawanna Co.,	Active.
Jermyn Water Company, (The)	June 5, 1884,	Jermyn Borough, Lackawanna Co.,	Merged into Jermyn and Rush Brook Water Company.
Jersey Shore Water Company, (The)	Mar. 18, 1884,	Jersey Shore Borough, Lycoming Co.,	Active.
Jessop Water Company,	June 24, 1901,	Canton Township, Washington Co.,	Active.
Johnsonburg Water Company,	Aug. 13, 1890,	Ridgway Township, Elk Co.,	Active.
Johnstown Water and Gas Company,	Apr. 15, 1856,	Johnstown, Cambria Co.,	Sold to Consumers Gas Company. Not in operation.
Johnstown Water Company,	Apr. 11, 1866,	Johnstown, Conemaugh, Millvale, Prospect and Cambria Boroughs, Cambria Co.	Active.
Josephine Water Company,	May 30, 1906,	Burrell Township, Indiana Co.,	Active.
Juniata Water Company,	Jan. 4, 1894,	Juniata Borough, Blair Co.,	Has done no work.
Juniata Water and Water Power Company,	June 15, 1904,	Smithfield Township, Huntingdon Co.,	Active.
Justin Water Company of Weatherly, Pa.,	Dec. 21, 1904,	Weatherly Borough, Carbon Co.,	Affidavit of dissolution.
Kalorama Water Company,	June 24, 1901,	N. Franklin Township, Washington Co.,	Active.
Kane Gas and Water Company,	Mar. 21, 1865,	Kane, McKean Co.,	Never operated.
Katharine Water Company,	May 18, 1904,	Susquehanna Township, Cambria Co.,	Has done no work.
Kelly Water Company,	Oct. 19, 1900,	Kelly Township, Union Co.,	Active.
Kensington Water Company,	July 7, 1890,	Lower Burrell Township, Westmoreland Co.	Active.
Kersey Water Company,	Apr. 13, 1903,	Jay Township, Elk Co.,	Never operated.
Keystone Gas and Water Company of Titusville,	Mar. 28, 1870,	Titusville, Crawford Co.,	Never operated.
Keystone Water Company,	Oct. 15, 1888,	Plains Township, Luzerne Co.,	Affidavit of dissolution.
Keystone Water Company, (The)	July 11, 1890,	LaPlume Borough, Lackawanna Co.,	Affidavit of dissolution.
Keystone Water Company, (The)	Feb. 29, 1892,	Harrisburg City, Dauphin Co.,	Affidavit of dissolution.
Keystone Water Company of Milton, Pa.,	Sept. 28, 1900,	Milton, Northumberland Co.,	Affidavit of dissolution.
Keystone Water Improvement Company,	Jan. 6, 1896,	Philadelphia City,	Has done no work.
Kingston Water Company,	May 5, 1841,	Kingston, Luzerne Co.,	Has done no work.
Kingston Water Company, (The)	May 16, 1883,	Kingston Borough, Luzerne Co.,	Not in operation.
Kingston Water Company,	Mar. 8, 1905,	Edwardsville Borough, Luzerne Co.,	Active.
Kittanning Water Company,	Mar. 12, 1868,	Kittanning, Armstrong Co.,	Not in operation.
Knoxville Water Company,	June 27, 1892,	Knoxville Borough, Allegheny Co.,	Sold to St. Clair Water Company.
Kutztown Water Company,	June 27, 1889,	Kutztown Borough, Berks Co.,	Active.
Lackawanna Valley Water Supply Company,	Oct. 1, 1897,	Lackawanna and Susquehanna Cos.,	Active.
Knoxville Water Company, (The)	Dec. 7, 1885,	Scranton City, Lackawanna Co.,	Not in operation.
Lackawanna Water Supply Company, (The)	Aug. 29, 1893,	Dickson City Borough, Lackawanna Co.,	Affidavit of dissolution.
Lackawaxen Water Power Company,	May 21, 1901,	Lackawaxen Township, Pike Co.,	Affidavit of dissolution.
Lafayette Water Company,	May 20, 1904,	Chartiers Township, Allegheny Co.,	Active.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Laflin Water Company,	Apr. 29, 1889,	Jenkins Township, Luzerne Co.,	Active.
Lancaster Borough Water Company,	Mar. 21, 1836,	Lancaster, Lancaster Co.,	Sold to municipality.
Lancaster City Water Company,	Mar. 18, 1822,	Lancaster, Lancaster Co.,	Not operating.
Lancaster Water Company,	Apr. 23, 1829,	Lancaster, Lancaster Co.,	Not operating.
Lanesboro Water Company,	June 26, 1899,	Lanesboro Borough, Susquehanna Co.,	Active.
Langhorne Spring Water Company, (The)	Apr. 20, 1886,	Langhorne Borough, Bucks Co.,	Active.
Lansdale Water Company,	Aug. 31, 1882,	Lansdale Borough, Montgomery Co.,	Active.
Lansdowne Water Company, (The)	July 11, 1890,	Upper Darby Township, Delaware Co.,	Sold to Springfield Water Company.
Laporte Gas and Water Company,	Apr. 13, 1859,	Laporte, Sullivan Co.,	Not in operation.
Latrobe Water Company, (The)	Nov. 13, 1883,	Latrobe Borough, Westmoreland Co.,	Active.
Laurel Hill Water Supply Company,	Sept. 4, 1902,	Upper Turkeyfoot Township, Somerset Co.	Merged into Western Water Supply Company.
Laurel Run Water Company, (The)	Oct. 20, 1884,	Laurel Run, Luzerne Co.,	Active.
Laurel Springs Water Company,	June 1, 1888,	Tredyffrin, Easttown and Willistown Townships, Chester Co.	Not in operation.
Laurelton Water Company,	Aug. 23, 1897,	Laurelton Village, Union Co.,	Affidavit of dissolution.
Lawrence Water Company,	June 2, 1902,	Lawrence Township, Clearfield Co.,	Sold to Clearfield Water Company.
Lebanon Heights Water Company,	Jan. 17, 1905,	Scott Township, Allegheny Co.,	Active.
Lebanon Valley Consolidated Water Supply Company.	Aug. 11, 1903,	Merger. Lebanon Co.,	Active.
Lebanon Water Company,	Jan. 26, 1888,	North Lebanon Township, Lebanon Co.,	Active.
Lebanon Water Company,	Jan. 5, 1893,	Mansfield Borough, Allegheny Co.,	Sold to St. Clair Water Company.
Leechburg Water Company, (The)	Dec. 18, 1882,	Leechburg Borough, Armstrong Co.,	Not in operation.
Leechburg Water Works Company,	Dec. 20, 1887,	Leechburg, Armstrong Co.,	Active.
Lehigh Acme Water Company,	Nov. 24, 1902,	Lehigh Township, Northampton Co.,	Not in operation.
Lehigh Coplay Water Company,	June 26, 1901,	Coplay Borough, Lehigh Co.,	Affidavit of dissolution.
Lehighton Water Company,	Aug. 6, 1888,	Lehighton Borough, Carbon Co.,	Active.
Lehighton Water Supply Company,	Nov. 8, 1899,	Carbon Co.,	Active.
Lehigh Valley Water Supply Company,	July 24, 1899,	Lehigh, Northampton and Monroe Cos.,	Not in operation.
Lehigh Water Company,	May 4, 1854,	Easton, Northampton Co.,	Active,
Lemont Water Company,	Feb. 16, 1905,	North Union Township, Fayette Co.,	Merged into Youghgahela Water Company.
Lenape Water Supply Company,	Apr. 14, 1902,	Coolbaugh Township, Monroe Co.,	Never operated.
Lewisburg Water Company, (The)	May 30, 1883,	Lewisburg Borough, Union Co.,	Active.

Lewistown-Reedsville Water Company,	June 3, 1908,	Merger, Mifflin Co.,	Active.
Lewistown Water Company,	Apr. 16, 1838,	Lewistown, Mifflin Co.,	Merged into Lewistown-Reedsville Water Company.
Lewisville Water Company,	Sept. 30, 1886,	Lewisville, Potter Co.,	Active.
Ligonier Township Water Company,	May 30, 1903,	Ligonier Township, Westmoreland Co.,	Has done no work.
Lilly Water Company, (The)	Nov. 6, 1893,	Lilly Borough, Cambria Co.,	Not in operation.
Lincoln Water Company,	Dec. 10, 1896,	Allegheny Co.,	Sold to Monongahela Valley Water Company.
Lindsey Water Company, (The)	Feb. 27, 1898,	Clayville Borough, Jefferson Co.,	Active.
Linwood Water Company,	Dec. 2, 1895,	Lower Chichester Township, Delaware Co.	Sold to New Chester Water Company.
Lititz Water Company,	May 26, 1887,	Lititz, Lancaster Co.,	Sold to municipality.
Little Juniata Water and Power Company,	Feb. 11, 1903,	Logan Township, Huntingdon Co.,	Sold to Juniata Water and Water Power Company.
Little Mahoning Water Company,	Feb. 10, 1903,	Canoe Township, Indiana Co.,	Has done no work.
Liverpool Water Company, (The)	Sept. 18, 1894,	Liverpool Borough, Perry Co.,	Never operated.
Lock Haven Gas and Water Company,	Feb. 11, 1854,	Lock Haven, Clinton Co.,	Not in operation as water company.
Lock Haven Water Company,	Apr. 15, 1863,	Lock Haven, Clinton Co.,	Never operated.
Locust Mountain Water Company,	Oct. 24, 1881,	Conyngham Township, Columbia Co.,	Active.
Logan Spring Water Company,	Dec. 1, 1899,	Brown Township, Mifflin Co.,	Sold to Reedsville Water Company.
Logans Valley Water Company,	Nov. 7, 1900,	Antis Township, Blair Co.,	Has done no work.
Logansville Water Company,	Feb. 1, 1860,	Loganville, York Co.,	Never operated.
Logan Township Water Company,	Jan. 10, 1905,	Logan Township, Huntingdon Co.,	Never operated.
Logan Water Company,	Dec. 9, 1889,	Logan Township, Blair Co.,	Has done no work.
Logstown Water Company,	Nov. 25, 1901,	Aliquippa Borough, Beaver Co.,	Affidavit of dissolution.
Londonderry Water Company, (The)	Mar. 22, 1883,	Palmyra, Lebanon Co.,	Active.
Londonderry Water Company,	Apr. 9, 1902,	Royalton Borough, Dauphin Co.,	Merged into Middletown and Swatara Consolidated Water Company.
Longfellow Water Supply Company,	Mar. 11, 1905,	Bratton Township, Mifflin Co.,	Sold to Greenmont Water Supply Company.
Long Level Water and Power Company,	Nov. 13, 1902,	Lower Windsor Township, York Co.,	Affidavit of dissolution.
Londen Water Company,	Apr. 24, 1857,	Londen, Franklin Co.,	Not in operation.
Loudentown Water Company,	Mar. 31, 1821,	Loudentown, Franklin Co.,	Not in operation.
Lower Chanceford Water and Power Company,	Mar. 14, 1895,	Lower Chanceford Township, York Co.,	Affidavit of dissolution.
Lower Merion Water Company,	June 4, 1886,	Lower Merion Township, Montgomery Co.	Affidavit of dissolution.
Lower Mount Bethel Water Company,	Oct. 17, 1900,	Lower Mount Bethel Township, Northampton Co.	Not in operation.
Lower Nazareth Water Company,	June 9, 1902,	Lower Nazareth Township, Northampton Co.	Affidavit of dissolution.
Lower Oxford Water Company,	June 9, 1903,	Lower Oxford Township, Chester Co.,	Merged into Octoraro Water Company.
Lower St. Clair Water Company,	May 20, 1904,	Lower St. Clair Township, Allegheny Co.	Active.
Lower Windsor Water and Power Company,	May 23, 1902,	Lower Windsor Township, York Co.,	Merged into Susquehanna Storage, Lake and Power Company.
Loyalhanna Water Company,	Oct. 20, 1887,	Loyalhanna Township, Westmoreland Co.	Never operated.
Luckett Water Supply Company,	Mar. 11, 1905,	Cresson Township, Cambria Co.,	Sold to Mountain Springs Water Company, now Summit Water Supply Company.
Ludwick Water Company,	June 2, 1884,	Ludwick Borough, Westmoreland Co.,	Sold to Greensburg Water Company.
Lumber City Water Company, (The)	Aug. 4, 1890,	Austin Borough, Potter Co.,	Active.
Luzerne Water Company, (The)	Oct. 7, 1886,	Luzerne Borough, Luzerne Co.,	Not in operation.
Luzerne Water Company,	July 6, 1889,	Luzerne Borough, Luzerne Co.,	Active.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Lykens Water Company,	May 19, 1871,	Lykens, Dauphin Co.,	Has done no work.
Lykens Water Company, (The)	May 6, 1880,	Lykens Borough, Dauphin Co.,	Never operated.
Lykens Water Company, (The)	July 20, 1883,	Lykens Borough, Dauphin Co.,	Active.
Lyons Water Company,	June, 1866,	Maxatawny Township, Berks Co.,	Active.
Mace Springs Water Company of Bolivar, Pa.,	Oct. 18, 1900,	Bolivar Borough, Westmoreland Co.,	Active.
Madera Water Company,	Oct. 18, 1904,	Madera Village, Clearfield Co.,	Active.
Madison Water Company,	Nov. 11, 1901,	Turtle Creek Borough, Allegheny Co.,	Merged into Trafford Water Company.
Mahanoy City Water Company,	Feb. 15, 1866,	Mahanoy City Borough, Mahanoy, Delano and East Union Townships, Schuylkill Co.	Active.
Mahanoy Valley Gas and Water Company,	May 9, 1871,	Conyngham Township, Columbia Co., Mt. Carmel Township, Northumberland Co.	Not in operation.
Mahantongo Water Power Company,	Sept. 13, 1905,	Dauphin Co.,	Has done no work.
Mahoningtown Water Company,	Dec. 2, 1896,	Mahoningtown Borough, Lawrence Co.,	Merged into City of New Castle Water Company.
Mahoning Water Company, (The)	Nov. 11, 1884,	Punxsutawney Borough, Jefferson Co.,	Affidavit of dissolution.
Malvern Water Company,	Nov. 7, 1889,	Malvern Borough, Chester Co.,	Sold to municipality.
Mammoth Springs Water Company,	Sept. 1, 1909,	Muhlenberg Township, Berks Co.,	Not in operation.
Manayunk and Roxborough Water Company,	Apr. 9, 1859,	Manayunk and Roxborough, Philadelphia Co.	Sold to city.
Manchester Water Company of Allegheny Co., (The).	Apr. 12, 1864,	Manchester, Allegheny Co.,	Not in operation.
Manheim Water Company, (The)	Oct. 7, 1884,	Manheim Borough, Lancaster Co.,	Active.
Manor Township Water Company,	June 3, 1901,	Manor Township, Armstrong Co.,	Sold to Armstrong Water Company.
Manorville Water Company,	June 3, 1901,	Manorville Borough, Armstrong Co.,	Sold to Armstrong Water Company.
Manor Water Company,	May 13, 1898,	Manor Township, Armstrong Co.,	Affidavit of dissolution.
Manor Water and Power Company,	May 23, 1902,	Manor Township, Lancaster Co.,	Merged into Susquehanna Storage, Lake and Power Company.
Mansfield Borough Water Company,	Dec. 12, 1893,	Mansfield Borough, Allegheny Co.,	Sold to Monongahela Water Company.
Mansfield Valley Water Company,	Jan. 5, 1887,	Mansfield Borough, Allegheny Co.,	Affidavit of dissolution.
Mansfield Water Company.	July 2, 1889,	Mansfield Borough, Allegheny Co.,	Not in operation.
Mansfield Water Company, (The)	Sept. 14, 1891,	Mansfield Borough, Tioga Co.,	Active.
Manufacturers Water Company,	June 13, 1889,	Patton Township, Allegheny Co.,	Merged into Pennsylvania Water Company.
Manufacturers Water Company,	Feb. 19, 1900,	Cambria Co.,	Active.
Manufacturers Water Company of Bloomsburg, Pa., (The).	Dec. 9, 1892,	Bloomsburg, Columbia Co.,	Has done no work.
Manufacturers Water Company of Pittsburg, (The).	July 9, 1886,	Pittsburgh City, Allegheny Co.,	Sold to Monongahela Water Company.
Manwalamink Water Company,	Dec. 5, 1904,	Smithfield Township, Monroe Co.,	Active.

Maple Forest Water Supply Company, ...	Sept. 28, 1900,	Middle Smithfield Township, Monroe Co.,	Affidavit of dissolution.
Mapleton Water Company, ...	Oct. 11, 1906,	Mapleton Borough, Huntingdon Co., ...	Active.
Maple Water Company, ...	Dec. 5, 1904,	Franklin Borough, Cambria Co., ...	Merged into Conemaugh and Franklin Water Company.
Marchand Water Company, ...	June 9, 1903,	Marchand, Fayette Co., ...	Has done no work.
Marcus Hook Water Company, ...	Feb. 9, 1892,	Marcus Hook Borough, Delaware Co.,	Has done no work.
Marcy Township Water Company, ...	July 16, 1901,	Marcy Township, Luzerne Co., ...	Active.
Marianna Water Company, ...	Dec. 31, 1908,	West Bethlehem Township, Washington Co.	Active.
Marie Water Company, ...	May 12, 1902,	Blacklick Township, Cambria Co., ...	Active.
Marietta Gravity Water Company, (The)	May 27, 1892,	Marietta Borough, Lancaster Co., ...	Active.
Marietta Water Company, (The)	May 27, 1892,	Marietta Borough, Lancaster Co., ...	Affidavit of dissolution.
Marion Heights Water Company, ...	May 3, 1907,	Marion Heights Borough, Northumberland Co.	Active.
Marjorie Water Company, ...	May 12, 1902,	Susquehanna Township, Cambria Co., ..	Dissolved.
Marple Water Company of Delaware Co., ...	Aug. 6, 1901,	Marple Township, Delaware Co., ...	Affidavit of dissolution
Marsh Run Water Supply Company, ...	Mar. 11, 1905,	Tuscarora Township, Perry Co., ...	Sold to Nekoda Water Supply Company.
Martic Water and Power Company, ...	Mar. 11, 1895,	Martic Township, Lancaster Co., ...	Never operated.
Marlindale Water Company, ...	Apr. 30, 1901,	Portage Borough, Cambria Co., ...	Active.
Martinsburg Water Company, (The)	Mar. 4, 1892,	Martinsburg Borough, Blair Co., ...	Active.
Martins Creek Water Supply Company, ...	Apr. 23, 1901,	Lower Mt. Bethel Township, Northampton Co.	Has done no work.
Marysville Water Company, (The)	Apr. 3, 1895,	Marysville Borough, Perry Co., ...	Active.
Masontown Water Company, ...	June 18, 1900,	Masontown Borough, Fayette Co., ...	Affidavit of dissolution.
Masontown Water Supply Company, ...	July 12, 1906,	Masontown Borough, Fayette Co., ...	Affidavit of dissolution.
Matamoras Citizens Water Company, ...	June 17, 1903,	Westfall Township, Pike Co., ...	Not in operation.
Matamoras Water Company, (The)	May 24, 1898,	Matamoras Village, Pike Co., ...	Affidavit of dissolution.
Mauch Chunk Township Water Company, ...	Oct. 23, 1900,	Mauch Chunk Township, Carbon Co., ..	Sold to Panther Valley Water Company.
Mauch Chunk Water Company, ...	Mar. 6, 1849,	Mauch Chunk, Carbon Co., ...	Active.
Mauch Chunk Water Power Company, ...	Apr. 22, 1901,	Lehigh Township, Carbon Co., ...	Affidavit of dissolution.
Mayfield Water Company, (The)	July 7, 1892,	Mayfield Borough, Lackawanna Co., ..	Active.
McCall Ferry Power Company, ...	Apr. 11, 1905,	Merger, York and Lancaster Cos., ...	Not in operation.
McConnellsburg Water Company, ...	June 8, 1900,	McConnellsburg Borough, Fulton Co.,..	Active.
McKee Water Company, (The)	June 7, 1892,	Susquehanna Township, Dauphin Co.,	Sold to City of Hazleton.
McKeesport Water Company, (The)	Mar. 30, 1880,	McKeesport Borough, Allegheny Co., ..	Not in operation.
McKees Rocks Water Company, ...	Oct. 29, 1903,	McKees Rocks Borough, Allegheny Co.,	Affidavit of dissolution.
McSherrystown Water Company, ...	Mar. 29, 1893,	McSherrystown Borough, Adams Co., ..	Sold to Consumers Water Company of Hanover, now Hanover and McSherrystown Water Company.
Meadow Brook Water Company, ...	Dec. 27, 1887,	Scranton City, Lackawanna Co., ...	Sold to Scranton Gas and Water Company.
Meadow Spring Water Company, ...	June 30, 1903,	Freemansburg Borough, Northampton Co.	Has done no work.
Meadville Gas and Water Company, ...	Apr. 13, 1853,	Meadville, Crawford Co., ...	Not in operation.
Meadville Water Company, (The)	Oct. 30, 1874,	Meadville City, Crawford Co., ...	Sold to municipality (dissolved).
Mechanicsburg Gas and Water Company, ...	May 5, 1854,	Mechanicsburg, Cumberland Co., ...	Active.
Mechanics Water Company, ...	May 20, 1904,	West Homestead Borough, Allegheny Co.,	Active.
Melboy Water Company, ...	Aug. 31, 1901,	Hastings Borough, Cambria Co., ...	Affidavit of dissolution.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Melrose Water Company,	Sept. 13, 1906,	Wilmerding Borough, Allegheny Co.,	Sold to East McKeesport Water Company.
Menallen Water Company,	Aug. 8, 1902,	Menallen Township, Fayette Co.,	Active.
Mercantile Water Supply Company,	Mar. 11, 1905,	Union Township, Bedford Co.,	Has done no work.
Mercer Water Company, (The)	Sept. 7, 1886,	Mercer Borough, Mercer Co.,	Active.
Mercersburg Water Company,	Oct. 8, 1902,	Mercersburg Borough, Franklin Co.,	Active.
Merion Water Company, (The)	Apr. 6, 1892,	Lower Merion Township, Montgomery Co.	Dissolved.
Merlvale Water Supply Company,	Apr. 14, 1905,	Logan Township, Blair Co.,	Sold to Tipton Water Company.
Meshoppen Borough Water Company,	Jan. 22, 1869,	Meshoppen Borough, Wyoming Co.,	Active.
Meyersdale Water Company,	Jan. 20, 1888,	Meyersdale Borough, Somerset Co.,	Has done no work.
Meyersville Water Company, (The)	Oct. 13, 1890,	Manchester Township, York Co.,	Sold to York Water Company.
Middleburgh Water Company, (The)	Feb. 9, 1893,	Middleburgh Borough, Snyder Co.,	Affidavit of dissolution.
Middleburg Water Company,	June 15, 1903,	Middleburgh Borough, Snyder Co.,	Active.
Middleport Water Company,	Apr. 14, 1905,	Middleport Borough, Schuylkill Co.,	Not in operation.
Middletown and Swatara Water Company,	Sept. 3, 1884,	Middletown Borough, Dauphin Co.,	Merged into Middletown and Swatara Consolidated Water Company.
Middletown and Swatara Cons. Water Company,	Nov. 5, 1903,	Merger, Dauphin Co.,	Active.
Midland Water Company,	July 31, 1907,	Midland Borough, Beaver Co.,	Active.
Midway Water Company,	Nov. 26, 1904,	Midway Borough, Washington Co.,	Affidavit of dissolution.
Mifflinburg Water Company, (The)	May 22, 1894,	Mifflinburg Borough, Union Co.,	Has done no work.
Mifflintown Water Company, (The)	Sept. 18, 1891,	Mifflinburg Borough, Juniata Co.,	Active.
Mifflin Water Company,	Sept. 8, 1890,	Mifflin Township, Allegheny Co.,	Has done no work.
Mifflin Water Company,	Nov. 30, 1894,	Mifflin Township, Allegheny Co.,	Affidavit of dissolution.
Milford Cold Spring Water Company,	Apr. 5, 1849,	Milford, Pike Co.,	Active.
Millbrook Water Company,	Oct. 22, 1888,	Pittston Township, Luzerne Co.,	Affidavit of dissolution.
Millbrook Water Company, (The)	Apr. 13, 1893,	Haverford Township, Delaware Co.,	Affidavit of dissolution.
Millcreek Water Company,	Oct. 30, 1907,	Millcreek Township, Lebanon Co.,	Active.
Millersburg Home Water Company,	Aug. 21, 1890,	Millersburg, Dauphin Co.,	Active.
Millersburg Water Company,	Aug. 21, 1890,	Millersburg Borough, Dauphin Co.,	Not in operation.
Mill Hall Water Company, (The)	June 27, 1898,	Lamar Township, Clinton Co.,	Affidavit of dissolution.
Millheim Water Company,	Apr. 7, 1903,	Millheim Borough, Center Co.,	Active.
Millstone Water and Power Company,	July 14, 1904,	Conestoga Township, Lancaster Co.,	Merged into Safe Harbor Water and Power Company.

Millville Water Company,	Apr. 5, 1898,	Millville Borough, Columbia Co.,	Active.
Milnesville Water Company,	Dec. 8, 1892,	Milnesville Village, Luzerne Co.,	Active.
Milroy Water Company,	Dec. 1, 1899,	Armagh Township, Mifflin Co.,	Sold to Reedsville Water Company.
Milton Water Company, (The)	May 8, 1883,	Milton Borough, Northumberland Co.,	Sold to Mountain Water Company.
Minhart Run Water Company,	Nov. 9, 1900,	Derry Township, Mifflin Co.,	Merged into Lewistown-Reedsville Water Company.
Miners Mills Water Company,	Nov. 10, 1886,	Miners Mills Borough, Luzerne Co.,	Not in operation.
Miners Mills Water Company, (The)	Dec. 23, 1890,	Miners Mills Borough, Luzerne Co.,	Active.
Minersville Water Company,	Apr. 30, 1855,	Minersville, Schuylkill Co.,	Active.
Mine Spring Water Company,	Feb. 19, 1896,	Bridgeton, Bucks Co.,	Affidavit of dissolution.
Minooka Water Company,	Oct. 1, 1888,	Minooka Village, Lackawanna Co.,	Active.
Mohnsville Water Company, (The)	Sept. 9, 1885,	Mohnsville Village, Berks Co.,	Active.
Monaca Water Company,	Aug. 12, 1892,	Phillipsburg Borough, Beaver Co.,	Affidavit of dissolution.
Monaca Water Company,	Oct. 24, 1901,	Monaca Borough, Beaver Co.,	Affidavit of dissolution.
Monessen Water Company,	Sept. 8, 1897,	Rostraver Township, Westmoreland Co.,	Active.
Monongahela City Water Company, (The)	July 6, 1886,	Monongahela City Borough, Washington Co.	Active.
Monongahela Valley Water Company,	Oct. 25, 1897,	Allegheny Co.,	Active.
Monongahela Water Company,	Apr. 21, 1855,	Birmingham, East Birmingham and So. Pittsburg, Allegheny Co.	Active.
Monroe County Water Power and Supply Company.	Feb. 11, 1903,	Stroudsburg Borough, Monroe Co.,	Active.
Monroe County Water Supply Company,	Sept. 19, 1899,	Monroe Co.,	Active.
Monroe Township Water Company,	Apr. 3, 1907,	Monroe Township, Snyder Co.,	Not in operation.
Monroe Water and Power Company,	May 5, 1903,	Monroe Co.,	Has done no work.
Monroe Water Supply Company,	Dec. 27, 1899,	Monroe and Luzerne Cos.,	Active.
Montandon Water Company,	Feb. 5, 1900,	Montandon and Chillisquaque Township, Northumberland Co.	Active.
Monterey Water Company,	Aug. 19, 1895,	Monterey, Franklin Co.,	Active.
Montgomery Water Company, (The)	Sept. 13, 1897,	Montgomery Borough, Lycoming Co.,	Active.
Montgomery and Bucks County Water Company,	Mar. 28, 1900,	Montgomery and Bucks Cos.,	Affidavit of dissolution.
Montola Water Company,	Apr. 14, 1905,	Rush Township, Center Co.,	Active.
Montooth Water Company,	May 20, 1904,	Montooth Borough, Allegheny Co.,	Active.
Montrose Water Company,	July 8, 1887,	Montrose Borough, Susquehanna Co.,	Never operated.
Moore Water Company,	Oct. 24, 1900,	Plum Township, Allegheny Co.,	Active.
Moosic Mountain Water Company, (The)	Nov. 10, 1892,	Jessup Village, Lackawanna Co.,	Active.
Moosic Water Company, (The)	June 22, 1886,	Moosic, Lackawanna Co.,	Active.
Morea Water Company, (The)	Sept. 6, 1893,	Morea, Schuylkill Co.,	Active.
Moreland Spring Water Company,	Aug. 3, 1909,	Moreland Township, Montgomery Co.,	Active.
Moreland Water Company,	June 20, 1898,	Moreland Township, Montgomery Co.,	Sold to N. Springfield Water Company.
Morrellville and Cambria Borough Water Company.	Oct. 11, 1888,	Cambria Borough, Cambria Co.,	Active.
Morris Water Company,	July 17, 1901,	Morris Township, Clearfield Co.,	Active.
Moscow Water Company,	Oct. 17, 1888,	Madison and Covington Townships, Lackawanna Co.	Active.
Moss Glen Water Company,	Apr. 14, 1905,	Schuylkill Township, Schuylkill Co.,	Active.
Mountain Brook Water Company,	July 6, 1889,	Kingston Borough, Luzerne Co.,	Active.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Mountain City Water Company, (The)	Apr. 7, 1883,	Frackville Borough, Schuylkill Co.,	Active.
Mountain Crest Water Company,	Oct. 19, 1904,	Cresson Township, Cambria Co.,	Sold to Mountain Springs Water Company, now Summit Water Supply Company.
Mountain Crystal Water Company,	Dec. 17, 1904,	East Taylor Township, Cambria Co.,	Active.
Mountain Gap Water Company,	Sept. 18, 1907,	Spring Township, Center Co.,	Not in operation.
Mountain Home Water Company,	Oct. 12, 1900,	Barrett Township, Monroe Co.,	Active.
Mountain Springs Water Company of Wapwallopen, (The).	July 13, 1894,	Wapwallopen Village, Luzerne Co.,	Has done no work.
Mountain Top Water Company,	Mar. 11, 1903,	Gallitzin Township, Cambria Co.,	Has done no work.
Mountain View Water Company,	Aug. 16, 1904,	Steelton Borough, Dauphin Co.,	Affidavit of dissolution.
Mountain Water Company, (The)	May 4, 1891,	Upper Milford Township, Lehigh Co.,	Active.
Mountain Water Company,	July 24, 1893,	South Bethlehem Borough, Northampton Co.	Merged into Bethlehem Consolidated Water Company.
Mountain Water Company,	Aug. 5, 1895,	Pittsburgh City, Allegheny Co.,	Has done no work.
Mountain Water Company,	June 15, 1900,	Milton Borough, Turbot and West Chillisquaque Townships, Northumberland Co.	Active.
Mountain Water Company of Luzerne Co., (The)	Dec. 24, 1886,	Pittston, Luzerne Co.,	Affidavit of dissolution.
Mountain Water Company of New Cumberland, (The).	Feb. 19, 1896,	New Cumberland Borough, Cumberland Co.	Merged into Riverton Consolidated Water Company.
Mountain Water Supply Company,	Mar. 13, 1902,	Westmoreland, Fayette and Allegheny Cos.	Active.
Mt. Carmel Water Company,	Nov. 17, 1883,	Mt. Carmel Borough, Northumberland Co.	Active.
Mount Holly Water Company, (The)	Apr. 11, 1895,	Mt. Holly Springs Borough, Cumberland Co.	Active.
Mount Jewett Water Company,	Apr. 15, 1890,	Hamlin Township, McKean Co.,	Active.
Mt. Penn Suburban Water Company,	July 9, 1903,	Mt. Penn Borough, Berks Co.,	Active.
Mt. Penn Water Company,	May 18, 1903,	Mt. Penn Borough, Berks Co.,	Never operated.
Mount Pleasant Water Company, (The)	July 11, 1881,	Mt. Pleasant Borough, Westmoreland Co.	Active.
Mount Pocono Water Company, (The)	Mar. 8, 1895,	Pocono Village, Monroe Co.,	Affidavit of dissolution.
Mount Union Water Company,	June 28, 1899,	Mt. Union Borough, Huntingdon Co.,	Active.
Moylan Water Company,	Apr. 24, 1903,	Conemaugh Township, Indiana Co.,	Affidavit of dissolution.
Muddy Creek Water and Power Company,	May 23, 1902,	Lower Chanceford Township, York Co.,	Merged into Susquehanna Falls Power Company.
Muncy Valley Water Supply Company,	Nov. 26, 1904,	Picture Rocks Borough, Lycoming Co.,	Has done no work.
Muncy Water Company,	July 11, 1889,	Muncy Borough, Lycoming Co.,	Sold to the Muncy Water Supply Company.
Muncy Water Supply Company, (The)	Mar. 9, 1898,	Muncy Borough, Lycoming Co.,	Active.
Munhall Borough Water Company,	Oct. 15, 1903,	Munhall Borough, Allegheny Co.,	Affidavit of dissolution.
Munhall Water Company,	Sept. 19, 1899,	Mifflin Township, Allegheny Co.,	Dissolved.

Munster Supply Company,	Feb. 1, 1905,	Washington Township, Cambria Co.,	Sold to Mountain Springs Water Company, now Summit Water Supply Company.
Myerstown Water Company,	June 7, 1895,	Myerstown Village, Lebanon Co.,	Active.
Nanticoke Power Company,	Nov. 29, 1905,	Nanticoke Borough, Luzerne Co.,	Has done no work.
Nanticoke Water Company, (The)	May 25, 1882,	Nanticoke Borough, Luzerne Co.,	Active.
Nant-y-Glo Water Company,	Dec. 5, 1902,	Jackson Township, Cambria Co.,	Active.
Natrona Water Company,	Apr. 9, 1908,	Harrison Township, Allegheny Co.,	Active.
Nazareth Water Company,	Mar. 31, 1870,	Naazreth, Northampton Co.,	Merged into Blue Mountain Consolidated Water Company.
Nealton Water Company,	Mar. 27, 1900,	Reyburn Township, Armstrong Co.,	Sold to Armstrong Water Company.
Nekoda Water Supply Company,	Mar. 11, 1905,	Greenwood Township, Perry Co.,	Never operated.
Nescopeck Water Company,	July 9, 1891,	Nescopeck, Luzerne Co.,	Dissolved.
Nescopeck Water Supply Company,	Mar. 26, 1894,	Nescopeck Township, Luzerne Co.,	Active.
Nesquehoning Water Company,	Apr. 4, 1872,	Nesquehoning, Coaldale and Ashton, Carbon Co.	Sold to Panther Valley Water Company.
Nesquehoning Water Supply Company,	Dec. 27, 1899,	Carbon and Schuylkill Cos.,	Sold to Panther Valley Water Company.
Nether Providence Water Company,	Feb. 17, 1886,	Nether Providence Township, Delaware Co.	Active.
Neville Island Water Company,	Mar. 29, 1894,	Neville Township, Allegheny Co.,	Affidavit of dissolution.
Neville Township Water Company,	May 14, 1901,	Neville Township, Allegheny Co.,	Sold to Monongahela Water Company.
Neville Water Company,	Apr. 7, 1890,	Neville Township, Allegheny Co.,	Not in operation.
New Albany Water Company,	Jan. 16, 1896,	New Albany Borough, Bradford Co.,	Active.
New Berlin Water Company,	July 17, 1901,	New Berlin Borough, Union Co.,	Never operated.
New Brighton Water Company,	Apr. 16, 1838,	New Brighton, Beaver Co.,	Active.
New Brighton Water Company,	1879,	New Brighton, Beaver Co.,	Active.
New Castle Water Company,	Mar. 26, 1859,	New Castle, Lawrence Co.,	Never operated.
New Chester Water Company, (The)	Apr. 29, 1885,	Chester City, Delaware Co.,	Active.
New Cumberland Water Company,	Apr. 15, 1895,	New Cumberland Borough, Cumberland Co.	Has done no work.
New Florence Water Company,	Aug. 25, 1902,	New Florence Borough, Westmoreland Co.	Active.
New Haven Water Company,	July 22, 1884,	New Haven Borough, Fayette Co.,	Sold to Connellsville Water Company.
New Holland Water Company, (The)	Apr. 4, 1895,	New Holland Lancaster Co.,	Active.
New Hope Water Company,	May 8, 1901,	New Hope Borough, Bucks Co.,	Never operated.
Newmanstown Water Company, (The)	Feb. 11, 1892,	Newmanstown Village, Lebanon Co.,	Active.
New Milford Water Company, (The)	Apr. 28, 1892,	New Milford Borough, Susquehanna Co.,	Active.
New Philadelphia Company,	July 21, 1902,	New Philadelphia Borough, Schuylkill Co.	Affidavit of dissolution.
Newport Home Water Company, (The)	May 10, 1893,	Newport Borough, Perry Co.,	Active.
Newport Water Company,	Dec. 22, 1890,	Newport Borough, Perry Co.,	Affidavit of dissolution.
New Salem Water Company,	Feb. 17, 1905,	Menallen Township, Fayette Co.,	Active.
Newtown Artesian Water Company,	July 3, 1888,	Newtown Borough, Bucks Co.,	Active.
Newville Water Company, (The)	Jan. 8, 1896,	Newville Borough, Cumberland Co.,	Active.
New Wilmington Water Supply Company, (The)	Sept. 15, 1892,	New Wilmington Borough, Lawrence Co.	Active.
Niagara Water Company,	May 20, 1904,	Sheraden Borough, Allegheny Co.,	Active.
Nicholson Water Company,	May 10, 1892,	Nicholson Borough, Wyoming Co.,	Active.
Nippenose Water Company,	Oct. 19, 1909,	Nippenose Township, Lycoming Co.,	Active.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Nokomis Water Company, (The)	Nov. 26, 1890,	Factoryville, Wyoming Co.,	Active.
Norristown Insurance and Water Company,	Mar. 31, 1847,	Norristown, Montgomery Co.,	Active.
Norristown and Lewistown Water Company,	Apr. 10, 1826,	Norristown and Lewistown, Montgomery Co.	Not in operation.
Norristown Water Company,	Apr. 16, 1838,	Norristown, Montgomery Co.,	Not in operation.
North Abington Water Company, (The)	May 23, 1894,	Dalton, Lackawanna Co.,	Active.
Northampton Heights Water Company,	Dec. 4, 1901,	Northampton Heights Borough, Northampton Co.	Has done no work.
Northampton Water Company,	Feb. 13, 1816,	Northampton, Northampton Co.,	Not in operation.
North Annville Water Supply Company,	Sept. 17, 1909,	North Annville Township, Lebanon Co.,	Not in operation.
North Branch Water Company,	Aug. 27, 1901,	Summerhill Township, Cambria Co.,	Not in operation.
North Cornwall Water Supply Company,	Sept. 17, 1909,	North Cornwall Township, Lebanon Co.,	Not in operation.
North Coventry Water Company,	Apr. 27, 1909,	North Coventry Township, Chester Co.,	Active.
North Huntingdon Water Company,	Aug. 10, 1887,	North Huntingdon Township, Westmoreland Co.	Active.
North Irwin Water Company,	Nov. 14, 1895,	North Irwin Borough, Westmoreland Co.,	Active.
North Manheim Water Company,	June 24, 1904,	North Manheim Township, Schuylkill Co.	Active.
North Mountain Water Supply Company, (The)	Aug. 16, 1897,	Luzerne Co.,	Active.
North Rochester Water Company,	Nov. 25, 1901,	Rochester Township, Beaver Co.,	Active.
North Springfield Water Company,	June 20, 1898,	Springfield Township, Montgomery Co.,	Active.
North Strabane Water Company,	May 29, 1901,	N. Strabane Township, Washington Co.,	Active.
North Towanda Water Power Company,	Sept. 17, 1909,	North Towanda Township Bradford Co.,	Not in operation.
Northern Cambria Water Company, (The)	Oct. 19, 1909,	Susquehanna Township, Cambria Co.,	Active.
Northumberland County Water Supply Company,	Oct. 2, 1903,	Sunbury Borough, Northumberland Co.,	Dissolved.
Northumberland Water Company,	July 29, 1892,	Northumberland Borough, Northumberland Co.	Active.
North Union Water Company,	Oct. 30, 1890,	North Union Township, Fayette Co.,	Dissolved.
North Versailles Water Company,	Oct. 24, 1887,	N. Versailles Township, Allegheny Co.,	Affidavit of dissolution.
North Wales Water Company, (The)	Oct. 11, 1886,	N. Wales Borough, Montgomery Ca.,	Active.
North Washington Water Company,	Feb. 25, 1901,	N. Washington Borough, Washington Co.	Sold to Citizens Water Company of Washington.
Northwestern Water Power Company,	Mar. 31, 1904,	Allegheny Co.,	Not in operation.
Nottingham Water Company,	Mar. 9, 1903,	Nottingham Township, Washington Co.,	Affidavit of dissolution.
Oakdale Water Company,	July 25, 1902,	Oakdale Borough, Allegheny Co.,	Affidavit of dissolution.
Oak Grove Water Company,	July 1, 1901,	Pine Creek Township, Clinton Co.,	Affidavit of dissolution.

Oak Grove Water Company,	Mar. 18, 1895,	West Butler Township, Schuylkill Co.,	Has done no work.
Oak Lane Water Company,	June 12, 1893,	Cheltenham Township, Montgomery Co.,	Sold to North Springfield Water Company.
Oakland Water Company, (The)	Aug. 26, 1896,	Oakland Borough, Susquehanna Co.,	Active.
Oak Ridge Water Company,	Oct. 7, 1904,	Carbondale City, Lackawanna Co.,	Active.
Oakwood Water Company,	Jan. 17, 1905,	Crafton Borough, Allegheny Co.,	Active.
Octoraro Water Company, (The)	Apr. 23, 1890,	West Salsburg Township, Chester Co.,	Affidavit of dissolution.
Octoraro Water Company,	July 13, 1903,	Merger. Chester and Lancaster Cos.,	Active.
Ogontz Water Company,	June 14, 1909,	Cheltenham Township, Montgomery Co.,	Active.
Ohio Valley Water Company,	Apr. 8, 1903,	McKees Rocks Borough, Allegheny Co.,	Active.
Old Columbia Water Company,	Mar. 31, 1821,	Columbia Borough, Lancaster Co.,	Act repealed.
Old Forge Borough Water Company,	July 16, 1901,	Old Forge Borough, Lackawanna Co.,	Active.
Old Forge Water Company,	Feb. 4, 1889,	Marcy Township. Luzerne Co.,	Dissolved.
Oliver Water Company,	Nov. 30, 1894,	Duquesne Borough, Allegheny Co.,	Affidavit of dissolution.
Oliver Water Supply Company,	Mar. 11, 1905,	Oliver Township, Perry Co.,	Sold to Nekoda Wter Supply Company.
Olyphant Water Company,	Jan. 17, 1889,	Olyphant Borough, Lackawanna Co.,	Active.
Oneida Water Company, (The)	June 19, 1893,	East Union Township, Schuylkill Co.,	Active.
Onnalinda Water Company,	Feb. 27, 1901,	Onnalinda, Cambria Co.,	Sold to Mountain Springs Water Company, now Summit Water Supply Company.
Ontario Water Company,	May 20, 1904,	Bridgeville Borough, Allegheny Co.,	Affidavit of dissolution.
Orbisonia Water Company,	July 7, 1893,	Orbisonia Borough, Huntingdon Co.,	Has done no work.
Osceola Water Supply Company,	Aug. 12, 1889,	Osceola Mills, Clearfield Co.,	Active.
Oswayo Water Company,	July 1, 1901,	Oswayo Borough, Potter Co.,	Active.
Otter Water Supply Company,	Apr. 14, 1905,	Adams Township, Cambria Co.,	Sold to Mountain Springs Water Company, now Summit Water Supply Company.
Otto Water Company,	Apr. 14, 1905,	Reilly Township. Schuylkill Co.,	Active.
Oxford Gas and Water Company,	Mar. 24, 1868,	Oxford, Chester Co.,	Not in operation.
Paint Township Water Company,	May 20, 1897,	Scalp Level, Somerset Co.,	Active.
Palmer Water Company,	Feb. 23, 1899,	Lower Towamensing Township, Carbon Co.	Active.
Panhandle Water Company,	Jan. 17, 1905,	Esplen Borough, Allegheny Co.,	Active.
Panther Creek Water Company, (The)	July 21, 1891,	Fell Township, Lackawanna Co.,	Active.
Panther Valley Water Company, (The)	May 3, 1886,	Lansford Borough. Carbon Co.,	Active.
Panther Water Company,	Apr. 27, 1903,	Washington Township, Jefferson Co.,	Affidavit of dissolution.
Paoli Water Company,	Nov. 6, 1893,	Paoli, Chester Co.,	Dissolved.
Parker City Water Company, (The)	Jan. 16, 1891,	Parker City, Armstrong Co.,	Active.
Parkesburg Water Company,	Sept. 17, 1889,	Parkesburg Borough, Chester Co.,	Active.
Parkside Water Supply Company,	Nov. 26, 1902,	Paradise Township, Monroe Co.,	Active.
Parnassus Water Company, (The)	July 7, 1890,	Parnassus Borough. Westmoreland Co.,	Sold to Burrell Water Company, now Kensington Water Company.
Parsons Water Company, (The)	Dec. 23, 1890,	Parsons Borough. Luzerne Co.,	Active.
Pastorius Water Company,	Jan. 2, 1902,	Hanover Township, Lehigh Co.,	Never operated.
Patterson Heights Water Company,	June 5, 1902,	Patterson Heights Borough, Beaver Co.,	Active.
Patterson Water Company, (The)	Sept. 18, 1891,	Patterson Borough. Juniata Co.,	Active.
Patton Water Company,	Oct. 24, 1887,	Patton Township, Allegheny Co.,	Affidavit of dissolution.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Patton Water Company, (The)	Nov. 16, 1893,	Patton Borough, Cambria Co.,	Active.
Paulton Water Company,	July 20, 1900,	Washington Township, Westmoreland Co.	Active.
Paupack Water Company,	Nov. 27, 1899,	Wayne Co.,	Affidavit of dissolution.
Paxtang Cons. Water Company, (The)	June 19, 1895,	Paxtang Village, Dauphin Co.,	Active.
Peach Bottom Water and Power Company,	May 23, 1902,	Peach Bottom Township, York Co.,	Merged into Susquehanna River Power Company.
Peckville Water Supply Company,	Aug. 26, 1870,	Blakeley, Lackawanna Co.,	Sold to Archbald Water Company.
Peerless Water Company,	Aug. 31, 1893,	Sewickley Township, Westmoreland Co.,	Affidavit of dissolution.
Peltzonia Water Company,	June 11, 1901,	Cross Forks Borough, Potter Co.,	Affidavit of dissolution.
Pen Argyle Water Company, (The)	May 26, 1884,	Pen Argyle, Northampton Co.,	Has done no work.
Pen Argyle Water Company,	July 15, 1889,	Pen Argyl Borough, Northampton Co.,	Merged into Blue Mountain Consolidated Water Company.
Penn Borough Water Company,	Aug. 10, 1887,	Penn Borough, Westmoreland Co.,	Active.
Penn Run Water Company,	Mar. 9, 1903,	Cherryhill Township, Indiana Co.,	Merged into Branch Water Company.
Pennsburg Water Company,	Nov. 2, 1896,	Pennsburg Borough, Montgomery Co.,	Active.
Pennsylvania Power Company,	Dec. 7, 1904,	Lawrence Co.,	Active.
Pennsylvania-Susquehanna Power Company,	Nov. 13, 1902,	Manor Township, Lancaster Co.,	Affidavit of dissolution.
Pennsylvania Water Company,	Mar. 18, 1887,	Sterrett Township, Allegheny Co.,	Merged into Pennsylvania Water Company.
Pennsylvania Water Company,	May 26, 1902,	Merger, Allegheny Co.,	Active.
Penn Township Water Company,	Aug. 10, 1887,	Penn Township, Westmoreland Co.,	Active.
Penn Township Water Company,	Aug. 6, 1902,	Penn Township, Clearfield Co.,	Not in operation.
Penn Water Company of Sharon Hill Borough, (The).	Mar. 7, 1892,	Sharon Hill Borough, Delaware Co.,	Sold to Springfield Water Company.
Penn Water Power Company,	July 12, 1906,	Penn Township, Huntingdon Co.,	Not in operation.
Penn Water Company, (The)	June 27, 1885,	North Chester Borough, Delaware Co.,	Sold to South Chester Water Company.
Penn Water Company,	Mar. 18, 1887,	Braddock Township, Allegheny Co.,	Sold to Pennsylvania Water Company.
Peoples Power and Water Company,	June 6, 1900,	Fairview Township, York Co.,	Affidavit of dissolution.
Peoples Water Company, (The)	May 19, 1887,	Tredyffrin Township, Chester Co.,	Affidavit of dissolution.
Peoples Water Company,	Jan. 11, 1892,	Chartiers Borough, Allegheny Co.,	Has done no work.
Peoples Water and Power Company of Red Lion,	Feb. 6, 1900,	Red Lion Borough, York Co.,	Affidavit of dissolution.
Peoples Water Company of Abington Township,	June 20, 1898,	Abington Township, Montgomery Co.,	Sold to N. Springfield Water Company.
Peoples Water Company of Beaver Falls,	Dec. 17, 1896,	Beaver Falls Borough, Beaver Co.,	Affidavit of dissolution.
Peoples Water Company of Canonsburg,	July 3, 1901,	Canonsburg Borough, Washington Co.,	Active.
Peoples Water Company of Coraopolis, Pa.,	Dec. 20, 1895,	Coraopolis Borough, Allegheny Co.,	Affidavit of dissolution.
Peoples Water Company of Darby Township, (The)	Mar. 7, 1892,	Darby Township, Delaware Co.,	Sold to Springfield Water Company.
Peoples Water Company of Delaware Co.,	Aug. 6, 1901,	Haverford Township, Delaware Co.,	Sold to Springfield Water Company.
Peoples Water Company of Pittston, Pa.,	July 15, 1889,	Pittston Borough, Luzerne Co.,	Active.
Peoples Water Company of Plymouth Township, Luzerne Co., Pa.	Dec. 8, 1906,	Plymouth Township, Luzerne Co.,	Not in operation.

Peoples Water Company of Rush Township, Center Co., Pa.	June 27, 1901,	Rush Township, Center Co.,	Active.
Peoples Water Company of Sadsbury, Pa.,	June 1, 1903,	Sadsbury Township, Chester Co.,	Merged into Octoraro Water Company.
Peoples Water Company of Scranton, Pa.,	June 14, 1889,	Scranton City, Lackawanna Co.,	Active.
Peoples Water Company of Sharon Hill, (The)	July 11, 1892,	Sharon Hill Borough, Delaware Co.,	Has done no work.
Peoples Water Company of Summerville,	Oct. 2, 1903,	Summerville Borough, Jefferson Co.,	Active.
Peoples Water Company of Turtle Creek,	Nov. 19, 1900,	Turtle Creek Borough, Allegheny Co.,	Has done no work.
Peoples Water Company of Wilkes-Barre, Pa., (The).	May 19, 1891,	Wilkes-Barre City, Luzerne Co.,	Affidavit of dissolution.
Peoples Water Storage and Supply Co.,	Jan. 25, 1901,	Greene Township, Pike Co.,	Affidavit of dissolution.
Peoples Water Supply Co.,	Apr. 29, 1874,	Pittsburgh, Allegheny Co.,	Not in operation.
Peoples Water Supply Co.,	June 13, 1889,	Wilkins Township, Allegheny Co.,	Merged into Pennsylvania Water Company.
Pequa Water and Power Company,	May 23, 1902,	Martic Township, Lancaster Co.,	Merged into Susquehanna Falls Power Company.
Perkasie Water Company,	Apr. 8, 1895,	Perkasie Borough, Bucks Co.,	Sold to Perkasie Water Supply Company.
Perkasie Water Supply Company,	June 2, 1902,	Perkasie Borough, Bucks Co.,	Active.
Perry Water Company,	Dec. 7, 1896,	Perry Township, Fayette Co.,	Active.
Perryopolis Water Company,	Feb. 16, 1905,	Perry Township, Fayette Co.,	Has done no work.
Perrysville Water Company,	May 29, 1903,	Ross Township, Allegheny Co.,	Sold to Ohio Valley Water Company.
Peters Water Company,	Mar. 9, 1903,	Peters Township, Washington Co.,	Affidavit of dissolution.
Petrolia Gas and Water Company,	Mar. 22, 1865,	Oil City, Venango Co.,	Not in operation.
Philadelphia and Bristol Water Company,	Dec. 5, 1904,	Ben Salem Township, Bucks Co.,	Active.
Philadelphia Water and Filter Company,	May 7, 1896,	Philadelphia City, Philadelphia Co.,	Affidavit of dissolution.
Philadelphia Water Supply Company,	Dec. 10, 1894,	Philadelphia City,	Has done no work.
Phillipsburg Water Company, (The)	June 15, 1881,	Phillipsburg, Center Co.,	Merged into Citizens Water Company.
Phillipsburg Water Company,	June 25, 1888,	Phillipsburg Borough, Beaver Co.,	Never operated.
Phillipsburg Water Company,	July 1, 1890,	Phillipsburg Borough, Beaver Co.,	Sold to Valley Water Company.
Phoenix Water Company,	Jan. 20, 1909,	Windsor Borough, York Co.,	Merged into York Co. Consolidated Water Company.
Pike County Water Supply Company,	Sept. 4, 1901,	Blooming Grove Township, Pike Co.,	Active.
Pike Water Power Company,	Apr. 1, 1901,	Hawley Borough, Wayne Co.,	Never operated.
Pine Creek Valley Water Company,	Aug. 11, 1904,	Shaler Township, Allegheny Co.,	Not operating.
Pine Grove Water Company,	Jan. 15, 1877,	Pine Grove Mills Village, Center Co.,	Active.
Pine Grove Water Company, (The)	Oct. 14, 1890,	Pine Grove Borough, Schuylkill Co.,	Has done no work.
Pine Grove Water Company of Schuylkill Co., (The).	Dec. 13, 1886,	Pine Grove Borough, Schuylkill Co.,	Affidavit of dissolution.
Pine Hill Water Company,	Feb. 26, 1904,	Landingville Borough, Schuylkill Co.,	Active.
Pine Township Water Company,	Feb. 10, 1903,	Pine Township, Indiana Co.,	Active.
Pinoneer City Water Company,	Aug. 26, 1901,	Carbondale City, Lackawanna Co.,	Has done no work.
Pitcairn Water Company,	Oct. 12, 1900,	Pitcairn Borough, Allegheny Co.,	Affidavit of dissolution.
Pitcairn Water Company,	Nov. 11, 1901,	Pitcairn Borough, Allegheny Co.,	Merged into Trafford Water Company.
Pittsburgh Hydro-Electric Company,	Aug. 5, 1909,	Wharton Township, Fayette Co.,	Not in operation.
Pittston City Water Company,	July 16, 1901,	Pittston City, Luzerne Co.,	Active.
Pittston Township Water Company,	July 16, 1901,	Pittston Township, Luzerne Co.,	Active.
Pittston Water Company,	May 4, 1852,	Pittston, Luzerne Co.,	Not in operation.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Plains Township Water Company,	July 16, 1901,	Plains Township, Luzerne Co.,	Active.
Plainsville Water Company, (The)	May 20, 1890,	Plains Township, Luzerne Co.,	Active.
Plains Water Company, (The)	Nov. 23, 1885,	Plains Township, Luzerne Co.,	Dissolved.
Pleasant Gap Water Company,	Dec. 3, 1907,	Spring Township, Center Co.,	Has done no work.
Plockhoy Water Company,	Jan. 2, 1902,	Freemansburg Borough, Northampton Co.	Has done no work.
Plymouth Water Company, (The)	June 12, 1875,	Plymouth Borough and Township, Luzerne Co.	Active.
Pocono Knob Water Company,	July 7, 1908,	Coolbaugh Township, Monroe Co.,	Active.
Pocono Lake Water Company,	Sept. 1, 1909,	Tobyhanna Township, Monroe Co.,	Not in operation.
Pocono Mountain Water Supply Company,	Sept. 26, 1899,	Tunkhannock, Tobyhanna and Coolbaugh Townships, Monroe Co.	Never operated.
Point Marion Water Company, (The)	Aug. 10, 1892,	Point Marion Village, Fayette Co.,	Never operated.
Point Township Water Company,	July 23, 1903,	Point Township, Northumberland Co.,	Has done no work.
Port Allegheny Water Company, (The)	Oct. 16, 1884,	Port Allegany Borough, McKean Co.,	Active.
Port Matilda Water Company,	Nov. 30, 1909,	Port Matilda Village, Center Co.,	Active.
Porter Water Company,	Nov. 8, 1901,	Porter Township, Lycoming Co.,	Active.
Portland Water Company,	Feb. 9, 1904,	Portland Borough, Northampton Co.,	Active.
Portland Water and Power Company,	Feb. 9, 1904,	Portland, Northampton Co.,	Affidavit of dissolution.
Port Royal Water Company,	May 2, 1902,	Port Royal Borough, Juniata Co.,	Has done no work.
Port Vue Water Company,	Apr. 24, 1901,	Port Vue Borough, Allegheny Co.,	Active.
Possum Glory Water Company,	Feb. 10, 1903,	Pine Township, Indiana Co.,	Active.
Potter County Water Company,	Dec. 3, 1897,	Austin Borough, Potter Co.,	Charter annulled.
Pottstown Gas and Water Company,	Apr. 2, 1869,	Pottstown, Montgomery Co.,	Active.
Pottsville Water Company, (The)	Apr. 11, 1834,	Pottsville Schuylkill Co.,	Active.
Priceburg Water Company, (The)	May 25, 1899,	Priceburg Village, Lackawanna Co.,	Active.
Progress Water Supply Company,	Apr. 14, 1905,	Susquehanna Township, Dauphin Co.,	Sold to Dauphin Consolidated Water Supply Company.
Prospect Rock Water Company, (The)	Dec. 9, 1895,	Laurel Run Borough, Luzerne Co.,	Not in operation.
Providence Borough Water Company,	May 4, 1864,	Providence, Luzerne Co.,	Not in operation.
Providence Gas and Water Company,	Feb. 23, 1867,	Scranton, Lackawanna Co.,	Sold to Scranton Gas and Water Company.
Providence Hydro-Electric Company,	June 16, 1904,	Bedford Co.,	Has done no work.
Providence Water Company,	June 1, 1903,	Providence Township, Lancaster Co.,	Merged into Octoraro Water Company.
Provident Water Company, (The)	Apr. 4, 1899,	Rochester Borough, Beaver Co.,	Affidavit of dissolution.
Pulaski Water Company,	July 1, 1890,	Pulaski Township, Beaver Co.,	Sold to Valley Water Company.
Pulaski Water Company,	Apr. 14, 1905,	Pulaski, Lawrence Co.,	Active.
Punxsutawney Water Company, (The)	May 3, 1887,	Punxsutawney Borough, Jefferson Co.,	Active.
Pure Spring Water Company of Fogelsville,	Feb. 17, 1854,	Fogelsville, Lehigh Co.,	Not in operation.
Pure Spring Water Company of Kennett Square,	Feb. 21, 1846,	Kennett Square, Chester Co.,	Sold to municipality.

Pure Water Company,	Feb. 27, 1900,	Norristown Borough, Montgomery Co.,	Has done no work.
Pure Water Supply Company,	May 18, 1900,	White Deer Township, Union Co.,	Affidavit of dissolution.
Pure Water Supply and Transportation Company,	July 12, 1899,	Philadelphia City,	Affidavit of dissolution.
Puritan Water Company,	June 22, 1896,	Unity Township, Westmoreland Co.,	Active.
Purity Water Company,	May 11, 1904,	Sheridan Borough, Allegheny Co.,	Affidavit of dissolution.
Purity Water Company,	Oct. 14, 1904,	McClure Village, Snyder Co.,	Active.
Putman Water Company,	Jan. 5, 1893,	Chartiers Borough, Allegheny Co.,	Sold to St. Clair Water Company.
Quaker City Water Company,	Dec. 30, 1898,	Philadelphia City,	Has done no work.
Quakertown Water Company, (The)	Apr. 10, 1893,	Quakertown Borough, Bucks Co.,	Active.
Quarryville Water Company, (The)	Feb. 6, 1894,	Quarryville Borough, Lancaster Co.,	Active.
Quarry Water Company,	Sept. 9, 1901,	St. Clair Township, Westmoreland Co.,	Sold to High Ridge Water Supply Company.
Raccoon Water Company,	Dec. 9, 1901,	Aliquippa Borough, Beaver Co.,	Affidavit of dissolution.
Radnor Water Company,	Jan. 4, 1886,	Radnor Township, Delaware Co.,	Affidavit of dissolution.
Radnor Water Company, (The)	Nov. 17, 1891,	Radnor Township, Delaware Co.,	No work done.
Ramey Water Company,	Mar. 30, 1909,	Ramey Borough, Clearfield Co.,	Not in operation.
Rauchstown Water Company,	May 29, 1871,	Rauchstown, Clinton Co.,	Has done no work.
Rawn Township Water Company,	Oct. 23, 1900,	Rawn Township, Schuylkill Co.,	Sold to Panther Valley Water Company.
Rayburn Water Company,	Jan. 19, 1898,	Rayburn Township, Armstrong Co.,	Sold to Armstrong Water Company.
Rayne Water Company,	Aug. 31, 1904,	Rayne Township, Indiana Co.,	Not in operation.
Raystown Water Power Company,	Mar. 30, 1906,	Juniata Township, Huntingdon Co.,	Not in operation.
Reading Suburban Water Company,	Oct. 28, 1902,	Muhlenberg Township, Berks Co.,	Active.
Reading Water Company,	Mar. 16, 1819,	Reading, Berks Co.,	Sold to city.
Rebecca Water Company,	Sept. 23, 1901,	Cresson Township, Cambria Co.,	Active.
Rebersburg Water Company, (The)	Sept. 11, 1896,	Rebersburg, Center Co.,	Active.
Red Bank Water Company,	Nov. 19, 1901,	South Bethlehem Borough, Armstrong Co.	Merged into Citizens Water Company of New Bethlehem.
Red Lion Water Company, (The)	June 26, 1893,	Red Lion Borough, York Co.,	Active.
Redstone Water Company,	Oct. 13, 1887,	South Union Township, Fayette Co.,	Merged into Yougbiogheny Water Company.
Red Water Company,	Sept. 18, 1907,	Washington Township, Fayette Co.,	Merged into Belle Vernon Water Company.
Reeders Water Storage Company,	Sept. 4, 1900,	Jackson Township, Monroe Co.,	Dissolved.
Reedsville Water Company,	Nov. 24, 1899,	Armagh, Brown and Derry Townships, Mifflin Co.	Merged into Lewistown-Reedsville Water Company.
Rendham Water Company,	Oct. 18, 1888,	Rendham Village, Lackawanna Co.,	Active.
Renovo Gas and Water Company,	May 4, 1864,	Renovo, Clinton Co.,	Never operated.
Revere Water Company,	Feb. 15, 1905,	South Union Township, Fayette Co.,	Active.
Reynoldsville Water Company,	Sept. 24, 1888,	Reynoldsville, Ohiotown and Presottville, Jefferson Co.	Active.
Reynshanhurst Water Company,	Mar. 28, 1900,	Carbondale City, Lackawanna Co.,	Active.
Rheems Water Company,	Sept. 13, 1906,	West Donegal Township, Lancaster Co.,	Not in operation.
Richland Water Company of Richland, Pa.,	Sept. 10, 1888,	Richland, Lebanon Co.,	Active.
Rich Hill Water Company,	June 24, 1903,	Spring Hill Township, Fayette Co.,	Active.
Richland Township Water Company,	May 25, 1897,	Richland Township, Cambria Co.,	Active.
Richlandtown Water Company,	Aug. 12, 1895,	Richlandtown Borough, Bucks Co.,	Has done no work.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Ridge Water Company,	Jan. 17, 1905,	Ingram Borough, Allegheny Co.,	Active.
Ridgway Water Company, (The)	July 7, 1885,	Ridgway Borough, Elk Co.,	Has done no work.
Ridley Park Cold Spring Water Company, of Ridley Park.	June 20, 1889,	Ridley Park Borough, Delaware Co.,	Sold to Springfield Water Company.
Ridley Township Water Company,	Nov. 18, 1890,	Ridley Township, Delaware Co.,	Affidavit of dissolution.
Ridley Water Company, (The)	Jan. 8, 1886,	Ridley Township, Delaware Co.,	Affidavit of dissolution.
Ridley Water Company,	June 7, 1907,	Eddystone Borough, Delaware Co.,	Not in operation.
Ringtown Water Company,	Sept. 7, 1909,	Ringtown Borough, Schuylkill Co.,	Not in operation.
Risco Water Company,	Mar. 4, 1908,	Crescent Township, Allegheny Co.,	Active.
Rittersville Water Company,	July 12, 1899,	Hanover Township, Lehigh Co.,	Affidavit of dissolution.
Riverside Water Company,	Feb. 6, 1903,	East Pennsboro Township, Cumberland Co.	Not in operation.
Riverton Consolidated Water Company,	Feb. 17, 1904,	Merger, Cumberland and York Cos.,	Active.
Riverview Water Company,	Sept. 10, 1894,	Avalon Borough, Allegheny Co.,	Sold to Valley Consolidated Water Company.
Roaring Creek Water Company, (The)	Nov. 11, 1884,	Shamokin Borough, Northumberland Co.,	Active.
Robesonia Water Company,	Dec. 22, 1898,	Robesonia, Berks Co.,	Merged into Womelsdorf Consolidated Water Company.
Robinson Township Water Company,	Dec. 12, 1893,	Robinson Township, Allegheny Co.,	Sold to Monongahela Water Company.
Robinson Water Company, (The)	Jan. 17, 1887,	Robinson Township, Allegheny Co.,	Has done no work.
Rochester Water Company,	May 17, 1887,	Rochester Borough, Beaver Co.,	Never operated.
Rockcliff Water Company,	Feb. 29, 1888,	Clifford Township, Susquehanna Co.,	Active.
Rockledge Water Company,	Sept. 1, 1909,	Rockledge Borough, Montgomery Co.,	Active.
Rock Spring Water Company,	Mar. 28, 1873,	Hazleton and West Hazleton, Luzerne Co.	Not in operation.
Rockville Water Company,	May 28, 1896,	Harrisburg City, Dauphin Co.,	Affidavit of dissolution.
Rock Water Company,	Apr. 27, 1905,	Tremont Township, Schuylkill Co.,	Active.
Rockwood Water Company,	Apr. 14, 1905,	Rockwood Borough, Somerset Co.,	Active.
Rocky Glen Water Company,	Feb. 11, 1901,	Moosic Borough, Lackawanna Co.,	Active.
Rocky Springs Water Company,	Mar. 30, 1909,	Bell Township, Clearfield Co.,	Active.
Roscoe Water Company,	July 10, 1901,	Roscoe Borough, Washington Co.,	Affidavit of dissolution.
Rosslyn Water Company,	Jan. 17, 1905,	Carnegie Borough, Allegheny Co.,	Active.
Rostraver Water Company,	July 28, 1902,	Rostraver Township, Westmoreland Co.,	Affidavit of dissolution.
Ross Water Company,	Apr. 8, 1903,	Ross Township, Allegheny Co.,	Has done no work.
Roulet Water Company,	Feb. 3, 1904,	Roulet Township, Potter Co.,	Active.

Rouseville Water Company, (The)	June 10, 1891,	Rouseville Village, Venango Co.,	Affidavit of dissolution.
Rouzerville Water Company.	Apr. 12, 1898,	Rouzerville Village, Franklin Co.,	Active.
Rowenna Water Company, (The)	Aug. 11, 1893,	Rowenna Village, Lancaster Co.,	Active.
Royalton Water Company,	Nov. 12, 1901,	Royalton Borough, Dauphin Co.,	Not in operation.
Rural Water Company,	May 13, 1889,	Wilkins Township, Allegheny Co.,	Merged into Pennsylvania Water Company.
Rural Water and Power Company,	July 14, 1904,	Manor Township, Lancaster Co.,	Merged into Safe Harbor Water and Power Company.
Rush Brook Water Company, (The)	May 24, 1892,	Jermyn Borough, Lackawanna Co.,	Merged into Jermyn and Rush Brook Water Company.
Rush Township Water Company,	June 27, 1901,	Rush Township, Center Co.,	Affidavit of dissolution.
Rutherford Heights Water Supply Company,	Mar. 13, 1907,	Swatara Township, Dauphin Co.,	Not in operation.
Rutherglen Water and Power Company,	May 10, 1900,	Chest Township and Westover Borough, Clearfield Co.	Never operated.
Ryde Water Supply Company,	Mar. 11, 1905,	Wayne Township, Mifflin Co.,	Sold to Greenmont Water Supply Company.
Sadsbury Water Company, (The)	Apr. 23, 1890,	Sadsbury Township, Chester Co.,	Never operated.
Safe Harbor Water and Power Company,	Sept. 15, 1904,	Merger, Lancaster Co.,	Never operated.
Saint Benedict Water Company,	Mar. 7, 1907,	Carroll Township, Cambria Co.,	Active.
St. Clair Water Company, (The)	June 27, 1892,	Lower St. Clair Township, Allegheny Co.	Active.
St. Clair Water Company,	Sept. 11, 1901,	St. Clair Township, Westmoreland Co.	Affidavit of dissolution.
St. Davids Water Company, (The)	Apr. 13, 1893,	Radnor Township, Delaware Co.,	Affidavit of dissolution.
St. Lawrence Water Company,	June 11, 1901,	St. Lawrence, Berks Co.,	Active.
St. Marys Water Company.	July 12, 1889,	St. Marys Borough, Elk Co.,	Active.
Saint Petersburg Water Company,	Mar. 22, 1872,	St. Petersburg, Clarion Co.,	Never operated.
St. Petersburg Water Company, (The)	Sept. 5, 1882,	St. Petersburg Borough, Clarion Co.,	Active.
Salem Water Company,	Oct. 20, 1887,	Salem Township, Westmoreland Co.,	Not in operation.
Salisbury and South Allentown Water Company,	Apr. 19, 1901,	Salisbury Township, Lehigh Co.,	Affidavit of dissolution.
Salisbury Water Company,	Dec. 23, 1901,	Salisbury Borough, Somerset Co.,	Has done no work.
Salladasburg Water Company,	Oct. 19, 1909,	Salladasburg Borough, Lycoming Co.,	Active.
Saltsburg Water Company,	Jan. 3, 1889,	Saltsburg Borough, Indiana Co.,	Affidavit of dissolution.
Sand Run Water Company.	Oct. 23, 1902.	Richland Township, Cambria Co.,	Not in operation.
Sand Spring Water Company of Meyersdale,	Jan. 20, 1888,	Meyersdale Borough, Somerset Co.,	Active.
Sandy Lake Water Works.	Nov. 30, 1900,	Sandy Lake Borough, Mercer Co.,	Active.
Sanitary Water Supply Company,	July 9, 1889,	Whitemarsh Township, Montgomery Co.,	Affidavit of dissolution.
Saucon Springs Water Company,	Mar. 3, 1902,	So. Bethlehem Borough, Northampton Co.	Affidavit of dissolution.
Saucon Spring Water Company,	Mar. 30, 1909,	Lower Saucon Township, Northampton Co.	Not in operation.
Saxton Water Company,	Feb. 14, 1902,	Saxton Borough, Bedford Co.,	Active.
Sayre Water Company, (The)	Aug. 25, 1881.	Sayre and Athens Villages and Athens Township, Bradford Co.	Active.
Scalp Level Water Company,	May 29, 1899,	Scalp Level Village, Somerset Co.,	Active.
Schaefferstown Water Company,	Apr. 16, 1845,	Schaefferstown, Lebanon Co.,	Active.
Schuylkill Haven Gas and Water Company,	Apr. 9, 1855,	Schuylkill Haven, Schuylkill Co.,	Active.
Schuylkill Township Water Company.	June 20, 1898,	Schuylkill Township, Chester Co.,	Sold to Berwyn Water Company.
Schuylkill Valley Water Storage, Water Power and Transportation Company. (The).	Feb. 13, 1885,	Philadelphia Co.,	Has done no work.
Schuylkill Water Company, (The)	Aug. 17, 1882.	Tuscarora ond Patterson Villages, New Philadelphia and Middleport Boroughs, Schuylkill Co.	Not in operation.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Schuylkill Water Company,	Sept. 10, 1889,	Philadelphia City,	Affidavit of dissolution.
Scotia Water Company,	Nov. 26, 1900,	Jefferson Township, Allegheny Co.,	Affidavit of dissolution.
Scotia Water Supply Company,	July 20, 1904,	Jefferson Township, Allegheny Co.,	Active.
Scottdale Water Company,	Mar. 1, 1883,	Scottdale Borough, Westmoreland Co.,	Dissolved.
Scott Township Water Company,	Dec. 12, 1893,	Scott Township, Allegheny Co.,	Sold to Monongahela Water Company.
Scott Water Company, (The)	Jan. 17, 1887,	Scott Township, Allegheny Co.,	Has done no work.
Scott Water Company,	Oct. 30, 1900,	Scott Township, Allegheny Co.,	Has done no work.
Scranton Gas and Water Company,	Mar. 16, 1854,	Providence Township, Luzerne Co.,	Active.
Selinsgrove Water Company, (The)	Sept. 3, 1885,	Selinsgrove Borough, Snyder Co.,	Active.
Senwick Water Company,	June 5, 1902,	Jackson Township, Cambria Co.,	Not in operation.
Seward Water Company,	Sept. 10, 1901,	St. Clair Township, Westmoreland Co.,	Affidavit of dissolution.
Shamokin Dam Water Company,	Feb. 24, 1903,	Monroe Township, Snyder Co.,	Has done no work.
Shamokin Water Company,	Mar. 12, 1866,	Shamokin, Northumberland Co.,	Active.
Sharon Gas and Water Company,	Apr. 11, 1866,	Sharon, Mercer Co.,	Never operated as water company.
Sharon Hill Water Company,	Jan. 13, 1886,	Sharon Hill Borough, Delaware Co.,	Never operated.
Sharon Water Works Company, (The)	Nov. 20, 1883,	Sharon Borough, Mercer Co.,	Active.
Sharp Mountain Water Company,	Nov. 26, 1895,	Branch Township, Schuylkill Co.,	Dissolved.
Sharpsburg and Etna Water Company, (The)	Jan. 12, 1882,	Sharpsburg Borough, Allegheny Co.,	Affidavit of dissolution.
Sharpsville Water Works Company,	Oct. 3, 1887,	Sharpsville Borough, Mercer Co.,	Never operated.
Shavertown Water Company,	May 29, 1908,	Kingston Township, Luzerne Co.,	Has done no work.
Shawnee Water Company,	July 6, 1889,	Plymouth Borough, Luzerne Co.,	Active.
Shawnee Water Supply Company,	Mar. 7, 1907,	Shawnee Village, Monroe Co.,	Active.
Sheafers Creek Water Company,	June 27, 1893,	Branch Township, Schuylkill Co.,	Active.
Sheffield Water Company,	Apr. 17, 1906,	Sheffield Village, Warren Co.,	Active.
Shenandoah Citizens Water and Gas Company,	Feb. 25, 1870,	Shenandoah, Schuylkill Co.,	Active.
Shenango Water Company,	Nov. 29, 1897,	Mahoningtown Borough, Lawrence Co.,	Merged into City of New Castle Water Company.
Shenks Ferry Water and Power Company,	Nov. 13, 1902,	Chanceford Township, York Co.,	Affidavit of dissolution.
Sheraden Water Company,	June 24, 1895,	Sheraden Borough, Allegheny Co.,	Affidavit of dissolution.
Sheshequin Water Power Company,	Sept. 17, 1909,	Sheshequin Township, Bradford Co.,	Not in operation.
Shickshinny Water Company,	Mar. 12, 1866,	Shickshinny, Luzerne Co.,	Not in operation.
Shickshinny Water Company, (The)	Nov. 16, 1883,	Shickshinny, Luzerne Co.,	Active.
Shinglehouse Water Company,	May 13, 1902,	Shinglehouse Borough, Potter Co.,	Affidavit of dissolution.
Shippensburg Water Company, (The)	Dec. 22, 1884,	Shippensburg Borough, Cumberland Co.,	Affidavit of dissolution.
Shiremanstown Water Company,	Aug. 31, 1903,	Shiremanstown Borough, Cumberland Co.,	Active.
Shirland Water Company,	June 29, 1904,	Scott Township, Allegheny Co.,	Active.

Shoustown Water Company,	Aug. 12, 1901,	Crescent Township, Allegheny Co.,	Affidavit of dissolution.
Shrewsbury Water Company, (The)	June 24, 1891,	Shrewsbury Borough, York Co.,	Active.
Sides Water Company,	June 9, 1908,	Burrell Township, Indiana Co.,	Not in operation.
Siegfried-Northampton Water Company,	June 26, 1901,	Alliance Borough, Northampton Co.,	Affidavit of dissolution.
Silver Brook Water Company, (The)	June 1, 1886,	Kline Township, Schuylkill Co.,	Affidavit of dissolution.
Silver Brook Water Company, (The)	Jan. 17, 1893,	Nescopeck Township, Luzerne Co.,	Affidavit of dissolution.
Silver Creek Water Company,	May 21, 1889,	Blythe Township, Schuylkill Co.,	Active.
Silver Spring Water Company, (The)	Apr. 23, 1895,	Mechanicsburg Borough, Cumberland Co.,	Has done no work.
Sinking Springs Water Company,	Aug. 16, 1894,	Sinking Springs Village, Berks Co.,	Active.
Siverly Water Company,	Sept. 30, 1901,	Siverly Borough, Venango Co.,	Active.
Skippack Water Company, (The)	Apr. 13, 1893,	Lower Providence Township, Montgomery Co.	Affidavit of dissolution.
Slaters Water Company of East Bangor,	July 17, 1899,	East Bangor Borough, Northampton Co.,	Affidavit of dissolution.
Slatington Water Company,	Mar. 29, 1861,	Slatington, Lehigh Co.,	Sold to municipality.
Slippery Rock Water Company,	Dec. 3, 1907,	Perry Township, Lawrence Co.,	Not in operation.
Slocum Spring Water Company, (The)	Apr. 28, 1885,	Tunkhannock Borough, Wyoming Co.,	Not in operation.
Smethport Water Company, (The)	Apr. 4, 1881,	Smethport Borough, McKean Co.,	Active.
Snowden Water Company,	Nov. 26, 1900,	Snowden Township, Allegheny Co.,	Affidavit of dissolution.
Snowden Water Supply Company,	July 20, 1904,	Snowden Township, Allegheny Co.,	Active.
Snow Shoe Water Company,	Mar. 11, 1905,	Snow Shoe Township, Center Co.,	Active.
Solomon Run Water Company,	Oct. 28, 1901,	Johnstown, Cambria Co.,	Affidavit of dissolution.
Sonman Water Supply Company,	Mar. 11, 1905,	Portage Township, Cambria Co.,	Sold to Mountain Springs Water Company, now Summit Water Supply Company.
Soudertown Water Company,	Oct. 11, 1895,	Soudertown, Montgomery Co.,	Affidavit of dissolution.
South Abington Water Company,	Jan. 29, 1894,	South Abington, Lackawanna Co.,	Has done no work.
South Annville Water Supply Company,	Sept. 17, 1909,	South Annville Township, Lebanon Co.,	Not in operation.
South Bethlehem Water Company,	Dec. 4, 1901,	South Bethlehem Borough, Northampton Co.	Has done no work.
South Bradford Water Company,	Sept. 23, 1901,	Bradford Township, McKean Co.,	Never operated.
South Buffalo Water Company,	July 14, 1898,	South Buffalo Township, Armstrong Co.	Affidavit of dissolution.
South Canonsburg Water Company,	May 29, 1901,	South Canonsburg Borough, Washington Co.	Active.
South Chester Water Company, (The)	June 27, 1885,	South Chester Borough, Delaware Co.,	Sold to New Chester Water Company.
South Danville and Riverside Water Company,	July 28, 1874,	South Danville & Riverside, Northumberland Co.	Has done no work.
South Easton Water Company, (The)	Feb. 4, 1886,	South Easton Borough, Northampton Co.	Active.
Southern Water Supply Company,	June 20, 1902,	Springfield Township, Fayette Co.,	Merged into Western Water Supply Company.
South Fork Water Company,	Aug. 1, 1892,	South Fork Borough, Cambria Co.,	Active.
South Huntingdon Water Company,	July 7, 1908,	South Huntingdon Township, Westmoreland Co.	Not in operation.
South Mountain Water Company, (The)	Dec. 17, 1884,	Philadelphia City,	Has done no work.
South Mountain Water Company, (The)	Dec. 18, 1886,	Philadelphia City,	Has done no work.
South Penn Water and Electric Power Company,	May 10, 1901,	Hopewell Township, Bedford Co.,	Has done no work.
South Philipsburg Water Company,	June 27, 1901,	South Philipsburg Borough, Center Co.,	Dissolved.
South Pittsburgh Water Company,	July 15, 1904,	Bridgeville Borough, Allegheny Co.,	Active.
South Renovo Water Company,	Jan. 30, 1889,	South Renovo Borough, Clinton Co.,	Sold to municipality.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
South Sharon Water Company,	Jan. 10, 1900,	South Sharon Village, Mercer Co.,	Active.
South Side Spring Water Company,	Oct. 31, 1895,	Palmer Township, Northampton Co.,	Affidavit of dissolution.
South Side Water Company, (The)	Mar. 25, 1885,	Duboistown Borough, Lycoming Co.,	Has done no work.
South Union Water Company,	Dec. 5, 1904,	South Union Township, Fayette Co.,	Active.
South Versailles Water Company,	Nov. 25, 1901,	North Versailles Township, Allegheny Co.	Sold to East McKeesport Water Company.
South View Water Company, (The)	Nov. 7, 1890,	Baldwin Township, Allegheny Co.,	Sold to Monongahela Water Company.
South Washington Water Company,	Feb. 25, 1901,	South Washington Borough, Washington Co.	Sold to Citizens Water Company of Washington.
South Waverly Water Company, (The)	Apr. 18, 1881,	South Waverly Borough, Bradford Co.,	Active.
South Western Water Supply Company,	June 20, 1902,	Springfield Township, Fayette Co.,	Merged into Western Water Supply Company.
South West Water Company, (The)	June 24, 1892,	North Union Township, Fayette Co.,	Active.
South Williamsport Water Company, (The)	1887,	Armstrong Township, Lycoming Co.,	Has done no work.
Sowego Water and Power Company,	Mar. 14, 1895,	Fulton Township, Lancaster Co.,	Has done no work.
Spangler Water Company, (The)	Aug. 19, 1892,	Spangler Village, Cambria Co.,	Active.
Speers Water Company,	Oct. 25, 1897,	Speers Borough, Washington Co.,	Affidavit of dissolution.
Spragueville Water Supply Company,	Dec. 26, 1902,	Stroud Township, Monroe Co.,	Not in operation.
Spring Brook Water Company,	July 25, 1884,	Pleasant Valley Borough, Luzerne Co.,	Active.
Spring Brook Water Supply Company, (The)	Mar. 2, 1896,	Luzerne and Lackawanna Cos.,	Active.
Springdale Township Water Company,	Apr. 17, 1906,	Springdale Township, Allegheny Co.,	Sold to Allegheny Valley Water Company.
Springdale Water Company, (The)	Nov. 28, 1898,	Springdale Township, Allegheny Co.,	Dissolved.
Springdale Water Company,	Apr. 27, 1905,	Springdale Township, Allegheny Co.,	Active.
Springfield Consolidated Water Company,	Jan. 27, 1905,	Abington Township, Montgomery Co.,	Active.
Springfield Water Company,	Jan. 4, 1886,	Springfield Township, Delaware Co.,	Active.
Spring Garden Water Company, (The)	Apr. 8, 1864,	Reserve Township, Allegheny Co.,	Not in operation.
Spring Hill Water Company,	Oct. 31, 1899,	Point Marion Borough, Fayette Co.,	Active.
Spring Run Water Company,	Mar. 25, 1905,	Nescopeck Township, Luzerne Co.,	Has done no work.
Springtown Water Company,	Dec. 2, 1895,	Springtown Village, Bucks Co.,	Active.
Spring Water Company of Hopbottom,	Nov. 9, 1899,	Hopbottom Borough, Susquehanna Co.,	Affidavit of dissolution.
Spring Water Company of Kane,	July 5, 1887,	Kane Borough, McKean Co.,	Active.
Standard Water Company,	Aug. 10, 1900,	Unity Township, Westmoreland Co.,	Active.
Standard Water Company of Crafton, Pa.,	Dec. 29, 1892,	Crafton Borough, Allegheny Co.,	Has done no work.
State College Water Company, (The)	Aug. 22, 1892,	College Township, Center Co.,	Active.
Steelton Home Water Company, (The)	Aug. 9, 1892,	Steelton Borough, Dauphin Co.,	Sold to municipality (dissolved).
Steelton Water Company, (The)	May 1, 1884,	Steelton Borough, Dauphin Co.,	Not in operation.
Steelton Water Company,	Mar. 6, 1890,	Steelton Borough, Dauphin Co.,	Not in operation.
Steelton Water Company, (The)	Feb. 29, 1892,	Steelton Borough, Dauphin Co.,	Affidavit of dissolution.

Stewartstown Water Company,	Sept. 21, 1904,	Stewartstown Borough, York Co.,	Active.
Stewart Water Company,	Nov. 11, 1901,	North Huntingdon Township, Westmoreland Co.	Merged into Trafford Water Company.
Stockdale Water Company,	Apr. 22, 1897,	Stockdale, Washington Co.,	Has done no work.
Stockertown Spring Water Company,	Mar. 3, 1903,	Stockertown Borough, Northampton Co.,	Has done no work.
Stone Hill Water Company,	Oct. 18, 1905,	Rouseville Borough, Venango Co.,	Active.
Stony Creek Water Company,	Sept. 7, 1888,	Moxham, Cambria Co.,	Sold to Johnstown Water Company.
Stowe Township Water Company,	Feb. 24, 1890,	Stowe Township, Allegheny Co.,	Sold to Monongahela Water Company.
Stowe Water Company, (The)	Jan. 17, 1887,	Stowe Township, Allegheny Co.,	Has done no work.
Stowe Water Company,	June 6, 1904,	Stowe Township, Allegheny Co.,	Active.
Stowe Water Company,	Apr. 18, 1901,	Stowe Township, Allegheny Co.,	Has done no work.
Stoystown Water Company,	Apr. 17, 1906,	Stoystown Borough, Somerset Co.,	Active.
Strafford Water Company, (The)	Apr. 13, 1893,	Tredyffrin Township, Chester Co.,	Affidavit of dissolution.
Strasburg Water Company, (The)	Sept. 9, 1895,	Strasburg Borough, Lancaster Co.,	Sold to municipality (dissolved).
Strode Water Supply Company,	Apr. 14, 1905,	Granville Township, Mifflin Co.,	Sold to Greenmont Water Supply Company.
Stroudsburg Water Company,	Aug. 25, 1876,	Stroudsburg, Monroe Co.,	Active.
Stroudsburg Water Supply Company,	Mar. 15, 1905,	Stroudsburg Borough, Monroe Co.,	Active.
Suburban Water Company, (The)	May 23, 1892,	Lower Merion Township, Montgomery Co.	Not in operation.
Suburban Water Company of Allegheny Co., Pa.,	Mar. 7, 1887,	Verona Borough, Allegheny Co.,	Active.
Suburban Water Company of the Village of Cranberry.	May 31, 1895,	Cranberry Village, Luzerne Co.,	Not in operation.
Summerhill Borough Water Company,	Nov. 9, 1900,	Summerhill Borough, Cambria Co.,	Sold to Cambria Co. Water Supply Company.
Summerhill Water Supply Company,	Mar. 11, 1905,	Summerhill Township, Cambria Co.,	Sold to Mountain Springs Water Company. now Summit Water Supply Company.
Summit Hill Water Company,	Oct. 4, 1876,	Summit Hill Borough, Carbon Co.,	Active.
Summit Water Company, (The)	Jan. 15, 1894,	Loyalsock Township, Lycoming Co.,	Has done no work.
Summit Water Supply Company,	Nov. 15, 1899,	Lilly Borough, Cambria Co.,	Active.
Sunbury Water Company, (The)	Oct. 23, 1879,	Sunbury Borough, Northumberland Co.,	Has done no work.
Sunbury Water Company, (The)	Mar. 2, 1883.	Sunbury Borough, Northumberland Co.,	Active.
Superior Water Company,	May 20, 1904,	Ingram Borough, Allegheny Co.,	Active.
Susquehanna Falls Power Company,	Aug. 14, 1902,	Merger, Lancaster and York Cos.,	Active.
Susquehanna River Power Company,	Aug. 14, 1902,	Merger, Lancaster and York Cos.,	Active.
Susquehanna Storage, Lake and Power Company,	Aug. 14, 1902,	Merger, Lancaster and York Cos.,	Active.
Susquehanna Township Water Company,	Dec. 3, 1907,	Susquehanna Township, Dauphin Co.,	Not in operation.
Susquehanna Water Company, (The)	Aug. 17, 1874,	Susquehanna Depot, Susquehanna Co.,	Active.
Susquehanna Water Company, (The)	Sept. 14, 1885,	Wilkes-Barre, Luzerne Co.,	Affidavit of dissolution.
Susquehanna Water Company, (The)	Jan. 4, 1893,	Plains Township, Luzerne Co.,	Affidavit of dissolution.
Susquehanna Water Company,	Aug. 11, 1898,	Susquehanna Township, Cambria Co.,	Active.
Susquehanna Water Company,	Mar. 5, 1902,	Scranton City, Lackawanna Co.,	Not in operation.
Susquehanna Water and Power Company,	Sept. 2, 1902,	Martic Township, Lancaster Co.,	Merged into McCall Ferry Power Company.
Susquehanna Water Supply Company, (The)	Dec. 6, 1897,	Camp Hill Borough, Cumberland Co.,	Merged into Riverton Cons. Water Company.
Swatara Water Company, (The)	Oct. 11, 1898,	Swatara and Lower Swatara Townships, Dauphin Co.	Affidavit of dissolution.
Swiftwater Water and Power Company,	Apr. 14, 1902,	Swiftwater Village, Monroe Co.,	Active.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Tarentum Water Company, (The)	Dec. 1, 1885,	Tarentum Borough, Allegheny Co.,	Merged into Tarentum Water Company.
Tarentum Water Company,	May 30, 1906,	Merger, Allegheny Co.,	Sold to Allegheny Valley Water Company.
Tatamy Water Company,	Sept. 18, 1907,	Tatamy Borough, Northampton Co.,	Not in operation.
Taxpayers' Water Company,	June 16, 1899,	Carlisle Borough, Cumberland Co.,	Affidavit of dissolution.
Taylorville Water Company, (The)	Oct. 26, 1886,	Taylorville Village, Lackawanna Co.,	Active.
Temple Water Company, (The)	Feb. 11, 1880,	Temple Village, Berks Co.,	Has done no work.
Third Ward Water Works, Franklin, Venango, Co., Pa.	Aug. 14, 1879,	Franklin City (Third Ward) and Sugar Creek Township, Venango Co.	Affidavit of dissolution.
Thomson Borough Water Company, (The)	July 24, 1891,	Thomson Borough, Susquehanna Co.,	Active.
Thornburg Water Company,	June 16, 1904,	Robinson Township, Allegheny Co.,	Active.
Throop Water Company, (The)	Nov. 25, 1892,	Dickson City Borough, Lackawanna Co.,	Affidavit of dissolution.
Tiadaghton Water Company,	Nov. 8, 1901,	Pine Creek Township, Clinton Co.,	Active.
Tidioute Water Company,	June 12, 1873,	Tidioute Borough, Warren Co.,	Active.
Tinicum Water Company, (The)	Mar. 7, 1892,	Tinicum Township, Delaware Co.,	Sold to Springfield Water Company.
Tioga Water Works Company,	Nov. 4, 1887,	Tioga Borough, Tioga Co.,	Active.
Tionesta Water Supply Company, (The)	Oct. 24, 1892,	Tionesta Borough, Forest Co.,	Active.
Tipton Water Company,	Feb. 12, 1903,	Antis Township, Blair Co.,	Active.
Titusville Gas and Water Company,	Feb. 17, 1865,	Titusville, Crawford Co.,	Sold to Titusville Gas Company.
Titusville Water Company,	Mar. 21, 1865,	Titusville, Crawford Co.,	Never operated.
Tobyhanna and Pocono Springs Water Company,	Oct. 1, 1900,	Coolbaugh Township, Monroe Co.,	Active.
Tobyhanna Creek Water Supply Company,	Nov. 5, 1900,	Coolbaugh Township, Monroe Co.,	Active.
Tobyhanna Water Storage and Supply Company,	Feb. 1, 1900,	Tobyhanna Township, Monroe Co.,	Active.
Toby's Creek Water Company, (The)	Dec. 23, 1890,	Luzerne Borough, Luzerne Co.,	Active.
Tomhicken Water Company,	June 19, 1893,	Black Creek Township, Luzerne Co.,	Active.
Towanda Gas and Water Company,	Apr. 13, 1859,	Towanda, Bradford Co.,	Not in operation.
Towanda Water Company,	Mar. 31, 1851,	Towanda, Bradford Co.,	Has done no work.
Towanda Water Power Company,	Sept. 17, 1909,	Towanda Township, Bradford Co.,	Not in operation.
Towanda Water Works Company,	Dec. 1, 1879,	Towanda Borough, Bradford Co.,	Active.
Tower City Water Works Company, (The)	May 15, 1893,	Tower City, Schuylkill Co.,	Not in operation.
Town Water Company,	Nov. 18, 1902,	Bloomsburg, Columbia Co.,	Has done no work.
Trafford Water Company,	Nov. 11, 1901,	Patton Township, Allegheny Co.,	Merged into Trafford Water Company.
Trafford Water Company,	Jan. 4, 1902,	Merger, Allegheny and Westmoreland Cos.	Active.
Tredyffrin Water Company,	July 23, 1895,	Tredyffrin Township, Chester Co.,	Sold to Berwyn Water Company.
Tremont Water and Gas Company,	June 10, 1870,	Tremont, Schuylkill Co.,	Active.
Treverton Water Supply Company,	Mar. 30, 1906,	Zerbe Township, Northumberland Co.,	Active.
Trevose Manor Spring Water Company,	Dec. 3, 1907,	Bensalen Township, Bucks Co.,	Not in operation.

Tripp Water Supply Company,	Mar. 11, 1905,	Brady Township, Huntingdon Co.,	Has done no work.
Trotter Water Company,	Oct. 29, 1888,	Dunbar Township, Fayette Co.,	Merged into Trotter Water Company.
Trotter Water Company,	Sept. 14, 1905,	Merger, Fayette and Westmoreland Cos.	Active.
Trout Creek Water Supply Company,	Nov. 16, 1900,	Coolhaugh Township, Monroe Co.,	Not in operation.
Trout Lake Water Supply Company,	Sept. 13, 1900,	Jackson Township, Monroe Co.,	Not in operation.
Trout Run Water Company, (The)	Aug. 20, 1894,	Duncannon Borough, Perry Co.,	Active.
Trout Run Water Supply Company,	Mar. 11, 1905,	Logan Township, Huntingdon Co.,	Has done no work.
Troy Water Company of Troy, Bradford Co.,	Dec. 30, 1878,	Troy Borough, Bradford Co.,	Sold to municipality.
Tunkhannock Water Company,	Apr. 22, 1858,	Tunkhannock, Wyoming Co.,	Active.
Tunkhannock Water Supply Company,	Sept. 17, 1900,	Tunkhannock Township, Monroe Co.,	Not in operation.
Turkeyfoot Water Company, (The)	Mar. 25, 1881,	Markleton, Somerset Co.,	Has done no work.
Turkeyfoot Water Supply Company,	Sept. 4, 1902,	Upper Turkeyfoot Township, Somerset Co.	Merged into Western Water Supply Company.
Tuscarora Water Company,	Feb. 11, 1856,	Tuscarora, Schuylkill Co.,	Not in operation.
Two Lick Creek Water Company,	Feb. 10, 1903,	Green Township, Indiana Co.,	Has done no work.
Tylersville Water Company,	Apr. 13, 1859,	Tylersville, Clinton Co.,	Not in operation.
Tylersville Water Supply Company,	Oct. 23, 1902,	Tylersville Village, Clinton Co.,	Active.
Tyrone City Water Company,	Mar. 25, 1858,	Tyrone City, Blair Co.,	Has done no work.
Tyrone Gas and Water Company,	Mar. 10, 1865,	Tyrone, Blair Co.,	Active.
Tyrone Water Storage Company,	Mar. 11, 1905,	Snyder Township, Blair Co.,	Not in operation.
Ulster Water Power Company,	Sept. 17, 1909,	Ulster Township, Bradford Co.,	Not in operation.
Union County Power Company,	Nov. 7, 1908,	Union Co.,	Not in operation.
Uniondale Water Company,	Jan. 23, 1893,	Uniondale Borough, Susquehanna Co.,	Not in operation.
Union Township Water Company,	Mar. 9, 1903,	Union Township, Washington Co.,	Affidavit of dissolution.
Union Township Water Company of Union Co.,	May 3, 1907,	Union Township, Union Co.,	Not in operation.
Uniontown Gas and Water Company,	Mar. 26, 1859,	Uniontown, Fayette Co.,	Never operated.
Uniontown Water Company, (The)	Mar. 21, 1883,	Uniontown Borough, Fayette Co.,	Active.
Uniontown Water Company of Dauphin Co.,	Apr. 15, 1851,	Uniontown and Pillow, Dauphin Co.,	Active.
Union Water Company,	May 14, 1890,	Beaver Falls Borough, Beaver Co.,	Active.
Union Water Company,	Jan. 11, 1892,	Mansfield Borough, Allegheny Co.,	Has done no work.
Union Water Company of New Berlin,	Jan. 2, 1907,	New Berlin Borough, Union Co.,	Active.
Union Water Power Company,	Dec. 1, 1908,	West Chillisquaque Township, Northumberland Co.	Not in operation.
Union Water Supply Company of Oneida Township.	Apr. 14, 1905,	Oneida Township, Huntingdon Co.,	Sold to Trout Run Water Supply Company.
Unity Township Water Company,	June 2, 1884,	Unity Township, Westmoreland Co.,	Sold to Greensburg Water Company.
Unity Water Company,	Oct. 24, 1900,	Penn Township, Allegheny Co.,	Active.
University Water Company,	Feb. 5, 1907,	Ferguson Township, Center Co.,	Active.
Upland Water Company, (The)	June 27, 1885,	Upland Borough, Delaware Co.,	Sold to South Chester Water Company.
Upper Darby Water Company,	Jan. 11, 1886,	Upper Darby Township, Delaware Co.,	Never operated.
Upper Dublin Water Company,	June 20, 1898,	Upper Dublin Township, Montgomery Co.	Sold to N. Springfield Water Company.
Upper Dublin Water Company,	Nov. 14, 1900,	Upper Dublin Township, Montgomery Co.	Active.
Upper Gwynedd Water Company,	Dec. 7, 1909,	Upper Gwynedd Township, Montgomery Co.	Active.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Upper Mauch Chunk Water Company,	Oct. 26, 1872,	Upper Mauch Chunk, Carbon Co.,	Active.
Upper Merion Water Company,	May 25, 1887,	Upper Merion Township, Montgomery Co.	Affidavit of dissolution.
Upper Nazareth Water Company,	June 9, 1902,	Upper Nazareth Township, Northampton Co.	Affidavit of dissolution.
Valley Consolidated Water Company,	Dec. 7, 1896,	Allegheny Co.,	Sold to Ohio Valley Water Company.
Valley Forge Water Company, (The)	Apr. 13, 1893,	Upper Merion Township, Montgomery Co.	Affidavit of dissolution.
Valley Point Water Supply Company,	Mar. 11, 1905,	Shirley Township, Huntingdon Co.,	Sold to Greenmont Water Supply Company.
Valley Supply Water Company,	Aug. 11, 1887,	Carbondale City, Lackawanna Co.,	Affidavit of dissolution.
Valley View Water Company,	Mar. 10, 1882,	Valley View Village, Schuylkill Co.,	Affidavit of dissolution.
Valley Water Company,	May 14, 1889,	Penn Township, Allegheny Co.,	Merged into Pennsylvania Water Company.
Valley Water Company,	July 6, 1889,	Marcy Township, Luzerne Co.,	Active.
Valley Water Company,	Feb. 10, 1890,	Rochester Borough, Beaver Co.,	Sold to Union Water Company.
Valley Water Company of Emsworth,	Oct. 15, 1896,	Emsworth Borough, Allegheny Co.,	Has done no work.
Valley Water Company of Rochester,	Mar. 31, 1902,	Rochester Borough, Beaver Co.,	Active.
Valley Water Storage Company,	Jan. 5, 1905,	Dean Township, Cambria Co.,	Active.
Vandergrift Water Company,	Sept. 27, 1895,	Allegheny Township, Westmoreland Co.,	Active.
Vandling Water Company, (The)	Aug. 7, 1893,	Fell Township, Lackawanna Co.,	Active.
Vanport Water Company,	Feb. 26, 1902,	Borough Township, Beaver Co.,	Affidavit of dissolution.
Venango Water Company,	Apr. 4, 1863,	Franklin, Venango Co.,	Sold to municipality (Dissolved).
Vermont Water Company,	July 22, 1904,	Avalon Borough, Allegheny Co.,	Sold to Ohio Valley Water Company.
Versailles Water Company, (The)	Jan. 12, 1893,	Versailles Township, Allegheny Co.,	Not in operation.
Veteran Water Company,	Jan. 10, 1905,	Mt. Pleasant Township, Westmoreland Co.	Active.
Veteran Water Supply Company,	Jan. 10, 1905,	Hempfield Township, Westmoreland Co.,	Active.
Viaduct Water Supply Company,	Aug. 31, 1904,	East Taylor Township, Cambria Co.,	Active.
Villa Nova Water Company,	July 23, 1895,	Radnor Township, Delaware Co.,	Sold to Berwyn Water Company.
Vintondale Water Company,	Aug. 27, 1894,	Vintondale, Cambria and Indiana Cos.,	Dissolved.
Wallace Run Water Company,	Nov. 28, 1906,	Luzerne Township, Fayette Co.,	Dissolved.
Wallenpaupack Water Company,	Oct. 15, 1897,	Hawley Borough, Wayne Co.,	Affidavit of dissolution.
Wallenpaupack Water Company,	June 9, 1899,	Jefferson Township, Lackawanna Co.,	Has done no work.
Wallingford Water Company, (The)	Dec. 22, 1884,	Nether Providence Township, Delaware Co.	Active.
Walnutport Water Company,	Oct. 29, 1902,	Walnutport Village, Northampton Co.,	Has done no work.

Waltersburg Water Company,	Nov. 18, 1903,	Menallen Township, Fayette Co.,	Affidavit of dissolution.
Warren Gas and Water Company,	Mar. 8, 1869,	Warren, Warren Co.,	Never operated.
Warren Water Company, (The)	June 27, 1881,	Warren Borough, Warren Co.,	Active.
Warriors Mark Water Company,	Mar. 5, 1852,	Warriors Mark, Huntingdon Co.,	Active.
Warrior Run Water Company, (The)	Jan. 16, 1896,	Warrior Run Borough, Luzerne Co.,	Affidavit of dissolution.
Washington Township Water Company,	Jan. 10, 1905,	Washington Township, Fayette Co.,	Merged into Fayette City Water Company.
Washington Water Company,	Feb. 14, 1882,	Washington Borough, Washington Co.,	Never operated.
Washington Water Supply Company,	May 4, 1903,	Washington Township, Lehigh Co.,	Active.
Water Company of Manchester Township, (The)	July 20, 1896,	Manchester Township, York Co.,	Sold to York Water Company.
Water Company of Spring Garden Township, (The)	July 20, 1896,	Spring Garden Township, York Co.,	Sold to York Water Company.
Water Company of Springettsbury Township,	Dec. 8, 1906,	Springettsbury Township, York Co.,	Active.
Water Company of West Manchester Township, (The).	July 20, 1896,	West Manchester Township, York Co.,	Sold to York Water Company.
Waterford Water Company,	Sept. 18, 1907,	Waterford Borough, Erie Co.,	Active.
Water Pipes of Aaronsburg,	Mar. 25, 1809,	Aaronsubrg, Center Co.,	Not in operation.
Water Works of Northern Liberties, of Pittsburg,	Mar. 29, 1836,	Northern Liberties of Pittsburgh, Allegheny Co.	Not in operation.
Watsontown Water Company, (The)	Mar. 18, 1886,	Watsontown Borough, Northumberland Co.	Active.
Watts Power and Water Company,	Oct. 30, 1907,	Watts Township, Perry Co.,	Not in operation.
Waymart Water Company, (The)	May 10, 1893,	Waymart Borough, Wayne Co.,	Active.
Wayne Citizens Water and Supply Company,	July 19, 1899,	Wayne and Pike Cos.,	Merged into Honesdale Consolidated Water Company.
Waynesboro Water Company, (The)	July 11, 1882,	Waynesboro Borough, Franklin Co.,	Active.
Waynesburg Water Company,	May 19, 1886,	Waynesburg, Greene Co.,	Active.
Wayne Storage Water Power Company,	Aug. 16, 1904,	Wayne Co.,	Active.
Wayne Water Works Company,	Nov. 17, 1891,	Radnor Township, Delaware Co.,	Sold to N. Springfield Water Company.
Weatherly Water Company,	Jan. 24, 1882,	Weatherly Borough, Carbon Co.,	Active.
Weaverstown Water Company,	Mar. 2, 1903,	North Lebanon Township, Lebanon Co.,	Merged into Weaverstown Water Company, now Lebanon Valley Consolidated Water Supply Company.
Weissport Water Company,	Sept. 26, 1893,	Weissport Borough, Carbon Co.,	Active.
Weldon Water Company,	June 14, 1909,	Abington Township, Montgomery Co.,	Active.
Wellsboro Water Company, (The)	Aug. 4, 1885,	Wellsboro Borough, Tioga Co.,	Active.
Wernersville Water Company, (The)	Sept. 27, 1894,	Wernersville Village, Berks Co.,	Active.
West Berwick Water Supply Company,	May 26, 1902,	West Berwick Village, Columbia Co.,	Active.
West Bethlehem Water Company,	Dec. 4, 1901,	West Bethlehem Borough, Lehigh Co.,	Never operated.
West Bolivar Water Company,	Dec. 31, 1900,	Fairfield Township, Westmoreland Co.,	Active.
West Branch Water Company,	Nov. 9 ,1900,	Summerhill Township, Cambria Co.,	Sold to Cambria Co. Water Supply Company.
West Conshohocken Water Company, (The)	Sept. 28, 1897,	West Conshohocken Borough, Montgomery Co.	Active.
West Easton Spring Water Company,	May 2, 1900,	West Easton Borough, Northampton Co.	Affidavit of dissolution.
West Elizabeth Water Compnay,	Jan. 23, 1896,	West Elizabeth Borough, Allegheny Co.,	Sold to Elizabeth Water Company.
West End Water Company, (The)	Sept. 24, 1896,	Lancaster Township, Lancaster Co.,	Active.
West End Water Company,	Sept. 22, 1904,	Allison Township, Clinton Co.,	Active.
West End Water Company of West End Borough, Venango Co., Pa.	Aug. 5, 1903,	West End Borough, Venango Co.,	Active.
Western Water Company, (The)	Oct. 20, 1891,	Westmoreland Co.,	Sold to Western Water Supply Company.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Western Water Power Company,	Apr. 9, 1870,	Pennsylvania,	Not in operation.
Western Water Supply Company,	June 9, 1902,	Westmoreland Co.,	Merged into Western Water Supply Company.
Western Water Supply Company,	June 24, 1902,	Merger, Fayette and Westmoreland Cos.,	Merged into Western Water Supply Company.
Western Water Supply Company,	Sept. 23, 1902,	Merger, Fayette, Westmoreland and Somerset Cos.	Never operated.
Westfield Water Company, (The)	Sept. 2, 1890,	Westfield Borough, Tioga Co.,	Has done no work.
West Grove Water Company,	June 15, 1904,	West Grove Borough, Chester Co.,	Active.
West Hazleton Water Company, (The)	Jan. 9, 1893,	West Hazleton Borough, Luzerne Co.,	Has done no work.
West Homestead Water Company,	Oct. 15, 1903,	West Homestead Borough, Allegheny Co.	Affidavit of dissolution.
West Houtzdale Water Company,	Nov. 7, 1908,	Woodward Township, Clearfield Co.,	Not in operation.
West Indiana Water Company, (The)	Jan. 25, 1884,	West Indiana Borough, Indiana Co.,	Has done no work.
West Kittanning Water Company,	June 3, 1901,	Kittanning Borough, Armstrong Co.,	Sold to Armstrong Water Company.
West Lansdale Improvement Water Company,	June 13, 1906,	Upper Gwynedd Township, Montgomery Co.	Not in operation.
West Liberty Water Company,	May 20, 1904,	West Liberty Borough, Allegheny Co.,	Active.
West Milton Water Company,	Sept. 28, 1900,	Kelly Township, Union Co.,	Affidavit of dissolution.
Westmoreland Water Company of Greensburg Borough, Westmoreland Co., Pa., (The).	Sept. 24, 1886,	Greensburg Borough, Westmoreland Co.,	Active.
Westmoreland Water Company of Hempfield Township, Westmoreland Co., (The).	Sept. 24, 1886,	Hempfield Township, Westmoreland Co.,	Active.
Westmoreland Water Company of Ludwick Borough, Westmoreland Co., Pa., (The).	Sept. 24, 1886,	Ludwick Borough, Westmoreland Co.,	Active.
Westmoreland Water Company of Unity Township, Westmoreland Co., Pa., (The).	Sept. 24, 1886,	Unity Township, Westmoreland Co.,	Active.
West New Castle Water Company,	Dec. 17, 1896,	West New Castle Borough, Lawrence Co.	Merged into City of New Castle Water Company.
West Newton Water Company,	Feb. 5, 1895,	West Newton Borough, Westmoreland Co.	Not in operation.
West Newton Water Company,	Jan. 19, 1898,	West Newton Borough, Westmoreland Co.	Affidavit of dissolution.
West Newton Water Company of West Newton,	Dec. 9, 1897,	West Newton Borough, Westmoreland Co.	Active.
West Pittsburgh Water Company,	Dec. 12, 1902,	Taylor Township, Lawrence Co.,	Active.
West Pittston Water Company,	June 2, 1871,	West Pittston, Luzerne Co.,	Not in operation.
West Pottsgrove Water Company,	Apr. 27, 1909,	West Pottsgrove Township, Montgomery Co.	Not in operation.
West Reading Water Company,	May 17, 1886,	Spring Township, Berks Co.,	Active.
West Sadsbury Water Company,	Jan. 21, 1901,	West Sadsbury Township, Chester Co.,	Has done no work.
West Salem Water Supply Company,	Aug. 12, 1903,	Salem Township, Luzerne Co.,	Active.
West Side Water Company,	Apr. 13, 1888,	Dorranceton Borough, Luzerne Co.,	Active.
West Side Water Company,	July 6, 1889,	West Pittston Borough, Luzerne Co.,	Active.

West Side Water Company,	July 1, 1890,	Bridgewater Borough, Beaver Co.,	Sold to Valley Water Company.
West Side Water Company,	Nov. 21, 1899,	Elcoe, Roscoe, Stockdale and Speers Boroughs, and Allen Township, Washington Co.	Affidavit of dissolution.
West Side Water Company,	Mar. 31, 1902,	Bridgewater Borough, Beaver Co.,	Active.
West Susquehanna Water Power Company,	Apr. 29, 1901,	Clearfield, Clearfield Co.,	Affidavit of dissolution.
West Township Water Company,	Jan. 10, 1905,	West Township, Huntingdon Co.,	Not in operation.
West Washington Water Company,	Feb. 25, 1901,	West Washington Borough, Washington Co.	Sold to Citizens Water Company of Washington.
Westwood Water Company,	Jan. 17, 1905,	Union Township, Allegheny Co.,	Active.
Wheatfield Water Supply Company,	Mar. 11, 1905,	Wheatfield Township, Perry Co.,	Sold to Nekoda Water Supply Company.
Wheatland Water Company,	May 12, 1902,	Wheatland Borough, Mercer Co.,	Never operated.
White Deer Creek Water Supply Company,	Aug. 11, 1897,	Kelly Township, Union Co.,	Active.
White Deer Mountain Water Company,	Sept. 27, 1899,	White Deer Township, Union Co.,	Active.
White Deer Water Supply Company,	July 31, 1895,	Northumberland Co.,	Not in operation.
Whitehall Crane Water Company,	June 25, 1901,	Whitehall Township, Lehigh Co.,	Merged into Clear Springs Water Company.
Whitehall Township Water Company,	June 26, 1901,	Whitehall Township, Lehigh Co.,	Affidavit of dissolution.
Whitehall Water Company,	Mar. 7, 1893,	Whitehall, Lehigh Co.,	Sold to Clear Springs Water Company.
Whitehall Water Supply Company,	Mar. 11, 1905,	Franklin Township, Huntingdon Co.,	Sold to Trout Run Water Supply Company.
White Haven Water Company,	Feb. 27, 1865,	White Haven, Luzerne Co.,	Active.
White Marsh Water Company,	Dec. 24, 1894,	White Marsh Township, Montgomery Co.	Affidavit of dissolution.
White Township Water Company,	June 17, 1902,	White Township, Beaver Co.,	Not in operation.
Whitfield Water Company,	June 9, 1902,	Nazareth Borough, Northampton Co.,	Affidavit of dissolution.
Whitney Water Company,	Feb. 7, 1898,	Unity Township, Westmoreland Co.,	Affidavit of dissolution.
Wildmere Water Company,	Mar. 5, 1901,	Lehman Township, Pike Co.,	Affidavit of dissolution.
Wildwood Water Company,	Aug. 27, 1901,	Cresson Township, Cambria Co.,	Active.
Wilkes-Barre Water and Insurance Company,	May 5, 1832,	Wilkes-Barre, Luzerne Co.,	Has done no work.
Wilkes-Barre Water Company,	Feb. 12, 1850,	Wilkes-Barre, Luzerne Co.,	Active.
Wilkinsburg Water Company.	Dec. 5, 1901,	Wilkinsburg Borough, Allegheny Co.,	Not in operation.
Wilkins Township Water Company,	Apr. 4. 1901.	Wilkins Township, Allegheny Co.,	Not in operation.
Wilkins Water Company, (The)	Jan. 17, 1887,	Wilkins Township, Allegheny Co.,	Has done no work.
Williamsburg Water Company,	Dec. 19, 1895,	Williamsburg Borough, Blair Co.,	Affidavit of dissolution.
Williamsport Water Company,	Apr. 18, 1853,	Williamsport, Lycoming Co.,	Active.
Williams Valley Water Company,	Jan. 11, 1892,	Williamstown Borough, Dauphin Co.,	Active.
Willistown Water Company,	July 23, 1895,	Willistown Township, Chester Co.,	Sold to Berwyn Water Company.
Willow Grove Water Company, (The)	June 18, 1897,	Abington Township, Montgomery Co.,	Not in operation.
Willow Grove Water Supply Company,	Nov. 18, 1903,	Moreland Township, Montgomery Co.,	Not in operation.
Wilmerding Water Company,	Nov. 11, 1901,	Wilmerding Borough, Allegheny Co.,	Merged into Trafford Water Company.
Wilmore Water Company,	Aug. 1, 1906,	Wilmore Borough, Cambria Co.,	Not in operation.
Winburne Water Company,	June 2, 1903,	Cooper Township, Clearfield Co.,	Active.
Windher Water and Power Company,	Apr. 26, 1900,	Paint and Shade Townships, Somerset Co.	Active.
Wind Gap Water Company,	Sept. 1, 1899,	Wind Gap Borough, Northampton Co.,	Merged into Blue Mountain Consolidated Water Company.
Windsor Water Company,	Aug. 19, 1889,	Hamburg Borough, Berks Co.,	Active.

TABLE NO. 1—Continued.

Name.	Date of Incorporation.	Territory Covered by Charter.	Present Status.
Winslow Water Company,	Feb. 15, 1905,	Winslow Township, Jefferson Co.,	Not in operation.
Winton Water Company,	Jan. 17, 1889,	Winton Borough, Lackawanna Co.,	Active.
Womelsdorf Consolidated Water Company,	Dec. 5, 1904,	Merger, Berks Co.,	Active.
Womelsdorf Water Company,	Apr. 10, 1826,	Womelsdorf, Berks Co.,	Not in operation.
Womelsdorf Water Company, (The)	May 29, 1895,	Womelsdorf Borough, Berks Co.,	Merged into Womelsdorf Cons. Water Company.
Woodland Water Company,	Aug. 12, 1903,	Brownsville Township, Fayette Co.,	Has done no work.
Woodlawn Water Company,	Mar. 2, 1909,	Woodlawn Borough, Beaver Co.,	Active.
Woods Water Company,	July 1, 1895,	Crafton Borough, Allegheny Co.,	Affidavit of dissolution.
Woodward Water Company,	1872,	Woodward, Center Co.,	Active.
Woodward Water Company,	Apr. 23, 1903,	Cherryhill Township, Indiana Co.,	Has done no work.
Wrightsville Water Company, (The)	June 16, 1892,	Wrightsville Borough, York Co.,	Affidavit of dissolution.
Wrightsville Water Supply Company,	June 16, 1897,	Wrightsville Borough, York Co.,	Active.
Wright Township Water Company,	June 1, 1894,	Wright Township, Luzerne Co.,	Active.
Wyalusing Water Company,	Sept. 11, 1893,	Wyalusing Borough, Bradford Co.,	Active.
Wyncote Water Company,	Nov. 8, 1900,	Cheltenham Township, Montgomery Co.,	Active.
Wyoming Borough Water Company, (The)	Oct. 7, 1886,	Wyoming Borough, Luzerne Co.,	Affidavit of dissolution.
Wyoming Valley Gas and Water Company,	Apr. 3, 1869,	Wilkes-Barre, Luzerne Co.,	Has done no work.
Wyoming Valley Water Company, (The)	Sept. 20, 1883,	Wyoming and Lackawanna Valleys, Luzerne Co.	Dissolved.
Wyoming Valley Water Supply Company,	Apr. 30, 1900,	Luzerne Co.,	Has done no work.
Wyoming Water Company,	July 6, 1889,	Wyoming Borough, Luzerne Co.,	Active.
Wyomissing Spring Water Company,	Jan. 13, 1902,	Spring Township, Berks Co.,	Active.
Wysox Water Power Company,	Sept. 17, 1909,	Wysox Township, Bradford Co.,	Not in operation.
Yardley Water and Power Company,	Dec. 19, 1900,	Yardley Borough, Bucks Co.,	Active.
Yatesville Borough Water Company,	July 16, 1901,	Yatesville Borough, Luzerne Co.,	Active.
Yeadon Water Company, (The)	Apr. 17, 1894,	Yeadon Borough, Delaware Co.,	Not in operation.
Yeagertown Water Power Company,	Sept. 5, 1908,	Derry Township, Mifflin Co.,	Not in operation.
Yellow Creek Water Company,	Feb. 10, 1903,	Cherryhill Township, Indiana Co.,	Has done no work.
Yellow Creek Water Power Company,	July 20, 1900,	Bedford Co.,	Affidavit of dissolution.
Yellow Water Company,	Sept. 18, 1907,	Rostraver Township, Westmoreland Co.,	Merged into Belle Vernon Water Company.
Yoe Water Company,	June 20, 1899,	Yoe Borough, York Co.,	Merged into York County Cons. Water Company.
York Borough Water Company,	Apr. 16, 1836,	York, York Co.,	Not in operation.
York County Consolidated Water Company,	Apr. 1, 1909,	Merger, York Co.,	Active.
York Haven Water and Power Company,	Jan. 16, 1895,	York Haven Borough, York Co.,	Active.
York Water Company,	Feb. 8, 1816,	York, York Co.,	Active.
Youghgahela Water Company,	July 11, 1905,	Merger, Fayette Co.,	Merged into Trotter Water Company.

Youghiogheny Water Company,	Oct. 27, 1881,	Fayette and Westmoreland Cos.,	Merged into Trotter Water Company.
Yough Valley Water Company,	Dec. 10, 1896,	Allegheny Co.,	Not in operation.
Yough Water Company, (The)	Oct. 16, 1895,	Connellsville Township, Fayette Co.,	Has done no work.
Youngsville Borough Water Company,	July 15, 1889,	Youngsville Borough, Warren Co.,	Affidavit of dissolution.
Zerbe Run Water Company,	June 24, 1904,	Zerbe Township, Northumberland Co.,	Never operated.

TABLE NO. 2.

Consolidations of Water Companies by Merger or Purchase of Property and Franchises

Holding Company.		Constituent Companies.			
Name.	Incorporated for.	Name.	Incorporated for.	Form of Consolidation.	Date of Consolidation.
Allegheny Valley Water Co., ...	Cheswick Boro., Allegheny Co.	Harmar Twp. Water Co.,..	Harman Twp., Allegheny Co.	Purchased, ...	Aug. 13, 1906.
		Springdale Twp. Water Co.	Springdale Twp., Allegheny Co.	Purchased, ...	Aug. 13, 1906.
		Tarentum Water Co., ...	Merger, Allegheny Co., ..	Purchased, ...	Aug. 13, 1906.
Archbald Water Co., ...	Archbald Village, Luzerne Co.	Peckville Water Supply Co.	Blakely Twp., Lackawanna Co.	Purchased, ...	Oct. 24, 1894.
Armstrong Water Co., ...	Kittanning Boro., Armstrong Co.	Citizens Water Co. of Kittanning.	Kittanning Boro., Armstrong Co.	Purchased, ...	April 29, 1907.
		Nealton Water Co., ...	Rayburn Twp., Armstrong Co.	Purchased, ...	April 29, 1907.
		Manor Twp. Water Co.,...	Manor Twp., Armstrong Co.	Purchased, ...	April 29, 1907.
		Manorville Water Co., ..	Manorville Boro., Armstrong Co.	Purchased, ...	April 29, 1907.
		Rayburn Water Co., ...	Rayburn Twp., Armstrong Co.	Purchased, ...	April 29, 1907.
		West Kittanning Water Co.	Kittanning Boro., Armstrong Co.	Purchased, ...	April 29, 1907.
Beaverdale Water Co., ... The Beaverdale Water Co. was sold to the Mountain Springs Water Co., now the Summit Water Supply Co., on Aug. 30, 1905, (See Summit Water Supply Co.)	Merger-Cambria Co., ...	Adams Water Co., ...	Adams Twp., Cambria Co.	Merged,......	Oct. 18, 1904.
		Beaverdale Water Co., ...	Summerhill Twp., Cambria Co.	Merged,......	Oct. 18, 1904.
Belle Vernon Water Co., ...	Merger-Fayette & Westmoreland Counties.	Belle Vernon Water Co.,..	Belle Vernon Boro., Fayette Co.	Merged,......	May 4, 1908.
		Blue Water Co., ...	North Belle Vernon Boro., Westmoreland Co.	Merged,......	May 4, 1908.
		Red Water Co., ...	Washington Twp., Fayette Co.	Merged,......	May 4, 1908.
		Yellow Water Co., ...	Rostraver Twp., Westmoreland Co.	Merged,......	May 4, 1908.

Ben Avon Valley Water Co., ...	Merger-Allegheny Co., ...	Ben Avon Valley Water Co.	Ben Avon Boro., Allegheny Co.	Merged, ...	May 27, 1903.
		Emsworth Valley Water Co.	Emsworth Boro., Allegheny Co.	Merged, ...	May 27, 1903.
Benwood Water Company, ... The Benwood Water Co. was sold to the Ohio Valley Water Co. on June 28, 1904, (See Ohio Valley Water Co.)	Stowe Twp., Allegheny Co.	Fleming Park Water Co., ..	Fleming Park, Allegheny Co.	Purchased, ...	May 16, 1904.
Berwyn Water Company, ... The Berwyn Water Co. was sold to the North Springfield Water Co. on Oct. 13, 1899, (See North Springfield Water Co.)	Easttown Twp., Chester Co.	East Whiteland Water Co.	East Whiteland, Twp., Chester Co.	Purchased, ...	July 29, 1895.
		Schuylkill Twp. Water Co.	Schuylkill Twp., Chester Co.	Purchased, ...	June 24, 1898.
		Tredyffrin Water Co., ...	Tredyffrin Twp., Chester Co.	Purchased, ...	July 29, 1895.
		Villa Nova Water Co., ..	Radnor Twp., Delaware Co.	Purchased, ...	July 29, 1895.
		Willistown Water Co., ...	Willistown Twp., Chester Co.	Purchased, ...	July 29, 1895.
Bethlehem City Water Co., ...	Bethlehem Twp., Northampton Co.	Bethlehem Consolidated Water Co.	Merger-Lehigh & Northampton Co's.	Purchased, ...	Dec. 2, 1903.
Bethlehem Consolidated Water Co., ... The Bethlehem Consolidated Water Co. was sold to the Bethlehem City Water Co. on December 2, 1903, (See Bethlehem City Water Co.)	Merger-Lehigh and Northampton Co.'s.	Bethlehem Consolidated Water Co.	Bethlehem Twp., Northampton Co.	Merged, ...	Apr. 18, 1902.
		Bethlehem South Gas & Water Co.	South Bethlehem Boro., Salisbury, Saucon & Hanover Twps., Lehigh & Northampton Co's.	Merged, ...	Apr. 18, 1902.
		Mountain Water Co., ...	South Bethlehem Boro., Northampton Co.	Merged, ...	Apr. 18, 1902.
Blair Gap Water Supply Co., ...	Merger-Blair Co., ...	Blue Knob Water Supply Co.	Juniata Twp., Blair Co., ..	Merged, ...	Jan. 30, 1905.
		Glen Water Supply Co., ..	Logan Twp., Blair Co., ..	Merged, ...	Jan. 30, 1905.
		Glenfield Water Supply Co.	Allegheny Twp., Blair Co.	Merged, ...	Jan. 30, 1905.
		Antis Water Co., ...	Antis Twp., Blair Co., ..	Purchased, ...	Sept. 13, 1905.
		Belvoir Water Co., ...	Antis Twp., Blair Co., ...	Purchased, ...	Oct. 25, 1905.
Blue Mountain Consolidated Water Co.,	Merger-Northampton Co., ..	Nazareth Water Co., ...	Nazareth Boro., Northampton Co.	Merged, ...	Dec. 9, 1902.
		Pen Argyle Water Co., ..	Pen Argyle Boro., Northampton Co.	Merged, ...	Dec. 9, 1902.
		Wind Gap Water Co., ...	Wind Gap Boro., Northampton Co.	Merged, ...	Dec. 9, 1902.
Branch Water Company, ...	Merger-Indiana Co., ...	Branch Water Co., ...	Green Twp., Indiana Co.,	Merged, ...	Mar. 18, 1903.
		Penn Run Water Co., ...	Cherryhill Twp., Indiana Co.	Merged, ...	Mar. 18, 1903.

TABLE NO. 2—Continued.

Holding Company.		Constituent Companies.			
Name.	Incorporated for.	Name.	Incorporated for.	Form of Consolidation.	Date of Consolidation.
Brownsville Water Co.,	Merger-Fayette & Washington Co's.	Bridgeport Water Co.,	Bridgeport Boro., Fayette Co.	Merged,	Sept. 3, 1901.
		Brownsville Water Co.,	Brownsville Boro., Fayette Co.	Merged,	Sept. 3, 1901.
		Consolidated Water Co.,	Fayette & Washington Co's.	Merged,	Sept. 3, 1901.
California Water Co.,	California Boro., Washington Co.	Coal Center Water Co.,	Coal Center Boro., Washington Co.	Purchased,	Apr. 22, 1907.
		Coal Center Water Works Co.	Coal Center Boro., Washington Co.	Purchased,	Apr. 22, 1907.
Cambria County Water Supply Co.,	Cambria Co.,	Allegheny Twp. Water Co.	Allegheny Twp., Cambria Co.	Purchased,	Dec. 14, 1900.
		Croyle Twp. Water Co.,	Croyle Twp., Cambria Co.	Purchased,	Nov. 30, 1900.
		Summerhill Boro. Water Co.	Summerhill Boro., Cambria Co.	Purchased,	Nov. 30, 1900.
		West Branch Water Co.,	Summerhill Twp., Cambria Co.	Purchased,	Nov. 30, 1900.
Carlisle Water Company,	Carlisle Boro., Cumberland Co.	Cumberland Water Co.,	Boiling Springs Village, Cumberland Co.	Purchased,	Aug. 31, 1896.
City of New Castle Water Co.,	Merger-Lawrence Co.,	City of New Castle Water Co.	New Castle City, Lawrence Co.	Merged,	Aug. 15, 1902.
		Mahoningtown Water Co.,	Mahoningtown Boro., Lawrence Co.	Merged,	Aug. 15, 1902.
		Shenango Water Co.,	Mahoningtown Boro., Lawrence Co.	Merged,	Aug. 15, 1902.
		West New Castle Water Co.	West New Castle Boro., Lawrence Co.	Merged,	Aug. 15, 1902.
Citizens Water Co.,	Merger-Centre Co.,	Citizens Water Co. of Phillipsburg.	Philipsburg Boro., Centre Co.	Merged,	July 20, 1904.
		Phillipsburg Water Co.,	Philipsburg Boro., Centre Co.	Merged,	July 20, 1904.

Citizens Water Co. of New Bethlehem,	Merger-Clarion and Armstrong Co's.	Citizens Water Co. of New Bethlehem.	New Bethlehem Boro., Clarion Co.	Merged, ...	Nov. 30, 1904.
		Red Bank Water Co., ...	South Bethlehem Boro., Armstrong Co.	Merged, ...	Nov. 30, 1904.
Citizens Water Co. of Scottdale, ...	Scottdale Boro., Westmoreland Co.	Everson Water Co., ...	Upper Tyrone Twp., Fayette Co.	Purchased, ...	Jan. 28, 1907.
Citizens Water Co. of Washington, ...	Washington Boro., Washington Co.	East Washington Water Co.	East Washington Boro., Washington Co.	Purchased, ...	Sept. 14, 1901.
		North Washington Water Co.	North Washington Boro., Washington Co.	Purchased, ...	Sept. 14, 1901.
		South Washington Water Co.	South Washington Boro., Washington Co.	Purchased, ...	Sept. 14, 1901.
		West Washington Water Co.	West Washington Boro., Washington Co.	Purchased, ...	Sept. 14, 1901.
Clearfield Water Co., ...	Clearfield Boro., Clearfield Co.	Lawrence Water Co., ...	Lawrence Twp., Clearfield Co.	Purchased, ...	
Clear Springs Water Co., ...	Merger-Lehigh and Northampton Co's.	Allen Crane Water Co., ..	Allen Twp., Northampton Co.	Merged, ...	Apr. 10, 1902.
		Alliance Water Co., ...	Alliance Boro., Northampton Co.	Merged, ...	Apr. 10, 1902.
		Clear Springs Water Co., ..	Lehigh & Northampton Co's.	Merged, ...	Apr. 10, 1902.
		Coplay Water Co., ...	Coplay Boro., Lehigh Co.,	Merged, ...	Apr. 10, 1902.
		Crane Water Co., ...	Catasauqua Boro., Lehigh Co.	Merged, ...	Apr. 10, 1902.
		Hanover Crane Water Co.,	Hanover Twp., Lehigh Co.	Merged, ...	Apr. 10, 1902.
		Whitehall Crane Water Co.	Whitehall Twp., Lehigh Co.	Merged, ...	Apr. 10, 1902.
		Whitehall Water Co., ...	Whitehall, Lehigh Co., ...	Merged, ...	Apr. 10, 1902.
Clymer Water Co. of Indiana, ...	Indiana Boro., Indiana Co.	Clymer Water Co., of West Indiana.	West Indiana Boro., Indiana Co.	Purchased, ...	Sept. 2, 1899.
Conemaugh & Franklin Water Co., ...	Merger-Cambria Co., ...	Conemaugh & Franklin Water Co., ...	Conemaugh Boro., Cambria Co.	Merged, ...	Dec. 18, 1906.
		Maple Water Co., ...	Franklin Boro., Cambria Co.	Merged, ...	Dec. 18, 1906.
Connellsville Water Co., ...	Connellsville Boro., Fayette Co.	New Haven Water Co., ..	New Haven Boro., Fayette Co.	Purchased, ...	Aug. 8. 1892.
Consolidated Water Co. of Coudersport,	Coudersport Boro., Potter Co.	Citizens Water Co., ...	Coudersport Boro., Potter Co.	Purchased, ...	Oct. 16, 1906.
Dauphin Consolidated Water Supply Co.,	Merger-Dauphin Co., ...	Citizens Water Co. of Dauphin Borough.	Dauphin Boro., Daphin Co.	Merged, ...	June 9, 1903.
		Citizens Water Co. of Middle Paxton Twp.	Middle Paxton Twp., Dauphin Co.	Merged, ...	June 9, 1903.

TABLE NO. 2—Continued.

Holding Company.		Constituent Companies.			
Name.	Incorporated for.	Name.	Incorporated for.	Form of Consolidation.	Date of Consolidation.
		Citizens Water Co. of Susquehanna Twp.	Susquehanna Twp., Dauphin Co.	Merged, ...	June 9, 1903.
		Enola Water Co., ...	East Pennsboro Twp., Cumberland Co.	Purchased, ...	Mar. 13, 1906.
		Progress Water Supply Co.	Susquehanna Twp., Dauphin Co.	Purchased, ...	Mar. 13, 1906.
East McKeesport Water Co., ...	East McKeesport Boro., Allegheny Co.	Melrose Water Co., ...	Wilmerding Boro., Allegheny Co.	Purchased, ...	Sept. 26, 1907.
		South Versailles Water Co.	North Versailles, Twp., Allegheny Co.	Purchased, ...	June 24, 1902.
Elizabeth Water Co., ... The Elizabeth Water Co. was sold to the Monongahela Valley Water Co. on Feb. 1, 1898, (See Monongahela Valley Water Co.)	Elizabeth Boro., Allegheny Co.	West Elizabeth Water Co.	West Elizabeth Boro., Allegheny Co.	Purchased, ...	Jan. 23, 1896.
Fayette City Water Co., ...	Merger-Fayette Co., ...	Fayette City Water Co., ..	Fayette City Boro., Fayette Co.	Merged, ...	Jan. 5, 1906.
		Washington Twp. Water Co.	Washington Twp., Fayette Co.	Merged, ...	Jan. 5, 1906.
Galeton-Eldred Water Co., ...	Galeton village, Potter Co.	Eldred Water Co., ...	Eldred Boro., McKean Co.	Purchased, ...	July 18, 1906.
Greenmont Water Supply Co., ...	Henderson Twp., Huntingdon Co.	Arydale Water Supply Co.,	Brady Twp., Huntingdon Co.	Purchased, ...	Sept. 5, 1905.
		Calvin Water Supply Co.,	Union Twp., Huntingdon Co.	Purchased, ...	Sept. 5, 1905.
		Longfellow Water Supply Co.	Bratton Twp., Mifflin Co.	Purchased, ...	Sept. 5, 1905.
		Ryde Water Supply Co., ..	Wayne Twp., Mifflin Co.,	Purchased, ...	Sept. 5, 1905.
		Strode Water Supply Co., ..	Granville Twp., Mifflin Co.	Purchased, ...	Sept. 5, 1905.
		Valley Point Water Supply Co.	Shirley Twp., Huntingdon Co.	Purchased, ...	Sept. 5, 1905.

Greensburg Water Co.,	Greensburg Boro., Westmoreland Co.	Hempfield Twp. Water Co.	Hempfield Twp., Westmoreland Co.	Purchased,	Mar. 4, 1885.
		Ludwick Water Co.,	Ludwick Boro., Westmoreland Co.	Purchased,	Mar. 4, 1885.
		Unity Twp. Water Co.,	Unity Twp., Westmoreland Co.	Purchased,	Mar. 4, 1885.
Hanover & McSherrystown Water Co.,	Hanover Boro., York Co.,	Hanover Water Co.,	Hanover Boro., York Co.,	Purchased,	Apr. 6, 1896.
		McSherrystown Water Co.,	McSherrystown Boro., Adams Co.	Purchased,	May 24, 1905.
High Ridge Water Supply Co.,	St. Clair Twp., Westmoreland Co.	Connellsville Water Supply Co.	Connellsville Twp., Fayette Co.	Purchased,	Sept. 23, 1905.
		Quarry Water Co.,	St. Clair Twp., Westmoreland Co.	Purchased,	Apr. 10, 1907.
Honesdale Consolidated Water Co.,	Merger-Wayne & Pike Co's.,	Consumers Water Co. of Honesdale.	Honesdale Boro., Wayne Co.	Merged,	Feb. 10, 1905.
		Honesdale Water Co.,	Honesdale Boro., Wayne Co.	Merged,	Feb. 10, 1905.
		Wayne Citizens Water & Supply Co.	Wayne & Pike Co's.,	Merged,	Feb. 10, 1905.
Hughesville Home Water Co.,	Hughesville Boro., Lycoming Co.	Hughesville Water Co.,	Hughesville Boro., Lycoming Co.	Purchased,	
Jermyn & Rush Brook Water Co.,	Merger-Lackawanna Co.,	Jermyn Water Co.,	Jermyn Boro., Lackawanna Co.	Merged,	Oct. 16, 1894.
		Rush Brook Water Co.,	Jermyn Boro., Lackawanna Co.	Merged,	Oct. 16, 1894.
Johnstown Water Co.,	Johnstown and vicinity, Cambria Co.	Stony Creek Water Co.,	Moxham, Cambria Co.,	Purchased,	May 1, 1890.
Juniata Water & Water Power Co.,	Smithfield Twp., Huntingdon Co.	Alexandria Water & Water Power Co.	Porter Twp., Huntingdon Co.	Purchased,	July 12, 1906.
		Little Juniata Water & Power Co.	Logan Twp., Huntingdon Co.	Purchased,	July 12, 1906.
Kensington Water Co.,	Lower Burrell Twp., Westmoreland Co.	Parnassus Water Co.,	Parnassus Boro., Westmoreland Co.	Purchased,	Jan. 10, 1893.
Latrobe Water Co.,	Latrobe Boro., Westmoreland Co.	Derry Twp. Water Co.,	Derry Twp., Westmoreland Co.	Purchased,	Apr. 8, 1885.
Lebanon Valley Consolidated Water Supply Co.	Merger-Lebanon Co.,	Hebron Water Co.,	So. Lebanon Twp., Lebanon Co.	Merged,	Aug. 11, 1903.
		Weaverstown Water Co.,	North Lebanon Twp., Lebanon Co.	Merged,	Aug. 11, 1903.
Lewistown-Reedsville Water Co.,	Merger-Mifflin Co.,	Citizens Water Co. of Lewistown.	Lewistown Boro., Mifflin Co.	Merged,	June 3, 1908.
		Granville Water Co.,	Granville Twp., Mifflin Co.	Merged,	June 3, 1908.

TABLE NO. 2—Continued.

Holding Company.		Constituent Companies.			
Name.	Incorporated for.	Name.	Incorporated for.	Form of Consolidation.	Date of Consolidation.
		Lewistown Water Co., ...	Lewistown Boro., Mifflin Co.	Merged, ...	June 3, 1908.
		Minehart Run Water Co.,	Derry Twp., Mifflin Co., ..	Merged, ...	June 3, 1908.
		Reedsville Water Co., ...	Armagh, Brown & Derry Twps., Mifflin Co.,	Merged, ...	June 3, 1908.
Logans Valley Water Co., ...	Antis Twp., Blair Co., ..	Bellwood Water Co., ...	Bellwood Boro., Blair Co.,	Purchased, ...	July 12, 1897.
McCall Ferry Power Co., ...	Merger-Lancaster & York Co's.	Hillside Water & Power Co.	Lower Chanceford Twp., York Co.	Merged, ...	Apr. 11, 1905.
		Susquehanna Water & Power Co.	Martic Twp., Lancaster Co.	Merged, ...	Apr. 11, 1905.
Middletown & Swatara Consolidated Water Co.	Merger-Dauphin Co., ...	Londonderry Water Co., ..	Royalton Boro., Dauphin Co.	Merged, ...	Nov. 5, 1903.
		Middletown & Swatara Water Co.	Middletown Boro., Dauphin Co.	Merged, ...	Nov. 5, 1903.
Monongahela Valley Water Co., ...	Allegheny Co., ...	Elizabeth Water Co., ...	Elizabeth Boro., Allegheny Co.	Purchased, ...	Feb. 1, 1898.
		Jefferson & Mifflin Water Co.	Baldwin, Snowden & Union Twps., Allegheny Co....	Purchased, ...	Feb. 1, 1898.
		Lincoln Water Co., ...	Allegheny Co., ...	Purchased, ...	Feb. 1, 1898.
Monongahela Water Company, ...	Birmingham, East Birmingham & South Pittsburg, Allegheny Co.	Borough of Chartiers Water Co.	Chartiers Boro., Allegheny Co.	Purchased, ...	Aug. 14, 1894.
		Mansfield Boro. Water Co.,	Mansfield Boro., Allegheny Co.	Purchased, ...	Aug. 14, 1894.
		Manufacturers Water Co. of Pittsburgh.	City of Pittsburg, south of Monongahela river, Allegheny Co.	Purchased, ...	Oct. 1, 1888.
		Neville Twp. Water Co.,	Neville Twp., Allegheny Co.	Purchased, ...	July 2, 1903.
		Robinson Twp. Water Co.,	Robinson Twp., Allegheny Co.	Purchased, ...	Aug. 14, 1894.
		Scott Twp. Water Co., ..	Scott Twp., Allegheny Co.	Purchased, ...	Aug. 14, 1894.

		South View Water Co., ..	Baldwin Twp., Allegheny Co.	Purchased, ...	Sept. 4, 1891.
		Stowe Twp. Water Co., ..	Stowe Twp., Allegheny Co.	Purchased, ...	Apr. 16, 1890.
Mountain Water Co., ...	Milton Boro., Turbet & West Chillisquaque Twps., Northumberland Co.	Milton Water Co., ...	Milton Boro., Northumberland Co.	Purchased, ...	Dec. 9, 1901.
Muncy Water Supply Co., ...	Muncy Boro., Lycoming Co.	Muncy Water Co., ...	Muncy Boro., Lycoming Co.	Purchased, ...	March, 1898.
Nekoda Water Supply Co., ...	Greenwood Twp., Perry Co.	Acker Water Supply Co., ..	Howe Twp., Perry Co., ..	Purchased, ...	Sept. 5, 1905.
		Iroquois Water Supply Co.	Miller Twp., Perry Co., ..	Purchased, ...	Sept. 5, 1905.
		Marsh Run Water Supply Co.	Tuscarora Twp., Perry Co.	Purchased, ...	Sept. 5, 1905.
		Oliver Water Supply Co., ..	Oliver Twp., Perry Co., ..	Purchased, ...	Sept. 5, 1905.
		Wheatfield Water Supply Co.	Wheatfield Twp., Perry Co.	Purchased, ...	Sept. 5, 1905.
Nesquehoning Water Supply Co., ... The Nesquehoning Water Supply Co. was sold back to the Panther Valley Water Co. on May 3, 1907, (See Panther Valley Water Co.)	Carbon & Schuylkill Co's., Co.	Panther Valley Water Co.	Lansford Boro., Carbon Co.	Purchased, ...	June 18, 1900.
New Chester Water Co., ...	Chester City, Delaware Co.	Eddystone Water Co., ...	Ridley Twp., Delaware Co.	Purchased, ...	Nov. 7, 1906.
		Linwood Water Co., ...	Lower Chichester Twp., Delaware Co.	Purchased, ...	Nov. 19, 1906.
		South Chester Water Co., ..	South Chester Boro., Delaware Co.	Purchased, ...	Nov. 19, 1906.
North Springfield Water Co., ...	Springfield Twp., Montgomery Co.	Berwyn Water Co., ...	Easttown Twp., Chester Co.	Purchased, ...	Oct. 13, 1899.
		Citizens Water Co. of White Marsh Twp.	Whitemarsh Twp., Montgomery Co.	Purchased, ...	June 24, 1898.
		Consumers Water Co. of Plymouth Twp.	Plymouth Twp., Montgomery Co.	Purchased, ...	June 24, 1898.
		Dewey Water Co., ...	Upper Merion Twp., Montgomery Co.	Purchased, ...	June 24, 1898.
		Glenside Water Co., ...	Glenside, Edge Hill & Weldon villages, Montgomery Co.	Purchased, ...	July 20, 1899.
		Moreland Water Co., ...	Moreland Twp., Montgomery Co.,	Purchased, ...	June 24, 1898.
		Oak Lane Water Co., ...	Cheltenham Twp., Montgomery Co.	Purchased, ...	Oct. 27, 1899.
		Peoples Water Co. of Abington Twp.	Abington Twp., Montgomery Co.	Purchased, ...	June 24, 1898.
		Upper Dublin Water Co.,	Upper Dublin Twp., Montgomery Co.	Purchased, ...	June 24, 1898.
		Wayne Water Works Co.,	Radnor Twp., Delaware Co.	Purchased, ...	Jan. 12, 1904.

TABLE NO. 2—Continued.

Holding Company.		Constituent Companies.			
Name.	Incorporated for.	Name.	Incorporated for.	Form of Consolidation.	Date of Consolidation.
North Strabane Water Co., ...	North Strabane Twp., Washington Co.	Cecil Water Co., ...	Cecil Twp., Washington Co.	Purchased, ...	Oct. 11, 1901.
		Chartiers Twp. Water Co.,	Chartiers Twp., Washington Co.	Purchased, ...	Oct. 11, 1901.
Octoraro Water Co., ...	Merger-Chester & Lancaster Co's.	Caln Water Co., ...	Caln Twp., Chester Co., ..	Merged, ...	July 13, 1903.
		Citizens Water Co. of West Sadsbury.	West Sadsbury Twp., Chester Co.	Merged, ...	July 13, 1903.
		Colerain Water Co., ...	Colerain Twp., Lancaster Co.	Merged, ...	July 13, 1903.
		Conestoga Water Co., ...	Conestoga Twp., Lancaster Co.	Merged, ...	July 13, 1903.
		Lower Oxford Water Co.,	Lower Oxford Twp., Chester Co.	Merged, ...	July 13, 1903.
		Peoples Water Co. of Sadsbury, Pa.	Sadsbury Twp., Chester Co.	Merged, ...	July 13, 1903.
		Providence Water Co., ...	Providence Twp., Lancaster Co.	Merged, ...	July 13, 1903.
Ohio Valley Water Co., ...	McKees Rock Boro., Allegheny Co.	Arizona Water Co., ...	Emsworth Boro., Allegheny Co.	Purchased, ...	July 26, 1904.
		Benwood Water Co., ...	Stowe Twp., Allegheny Co	Purchased, ...	June 28, 1904.
		Colorado Water Co., ...	Ben Avon Boro., Allegheny Co.	Purchased, ...	July 26, 1904.
		Idaho Water Co., ...	Bellevue Boro., Allegheny Co.	Purchased, ...	July 26, 1904.
		Perrysville Water Co., ...	Ross Twp., Allegheny Co.,	Purchased, ...	Sept. 22, 1904.
		Valley Consolidated Water Co.	Allegheny Co., ...	Purchased, ...	Aug. 5, 1904.
		Vermont Water Co., ...	Avalon Boro., Allegheny Co.	Purchased, ...	July 26, 1904.
Panther Valley Water Co., ...	Lansford Boro., Carbon Co.	Mauch Chunk Twp. Water Co.	Mauch Chunk Twp., Carbon Co.	Purchased, ...	May 3, 1907.
		Nesquehoning Water Co., ..	Nesquehoning, Coaldale & Ashton, Carbon Co.	Purchased, ...	May 3, 1907.
		Nesquehoning Water Supply Co.	Schuylkill & Carbon Co's.,	Purchased, ...	May 3, 1907.
		Rawn Twp. Water Co., ..	Rawn Twp., Schuylkill Co.	Purchased, ...	May 3, 1907.

Perkasie Water Supply Co.,	Perkasie Boro., Bucks Co.	Perkasie Water Co.,	Perkasie Boro., Bucks Co.,	Purchased,	June 5, 1902.
Pennsylvania Power Co.,	Lawrence Co.,	Elwood Power Co.,	Elwood City Boro., Lawrence Co.	Purchased,	Dec. 9, 1904.
Pennsylvania Water Co.,	Merger-Allegheny Co.,	Artesian Water Co. of Wilkinsburg.	Wilkinsburg Boro., Allegheny Co.	Merged,	May 26, 1902.
		Citizens Water Co.,	Braddock Twp., Allegheny Co.	Merged,	May 26, 1902.
		East Pittsburg Water Co.,	North Versailles Twp., Allegheny Co.	Merged,	May 26, 1902.
		Manufacturers Water Co.,	Patton Twp., Allegheny Co.	Merged,	May 26, 1902.
		Pennsylvania Water Co.,	Sterrett Twp., Allegheny Co.	Merged,	May 26, 1902.
		Peoples Water Supply Co.,	Wilkins Twp., Allegheny Co.	Merged,	May 26, 1902.
		Rural Water Co.,	Wilkins Twp., Allegheny Co.	Merged,	May 26, 1902.
		Valley Water Co.,	Penn Twp., Allegheny Co.,	Merged,	May 26, 1902.
Pennsylvania Water Co., The Pennsylvania Water Co. was merged into the Pennsylvania Water Co. on May 26, 1902, (See Pennsylvania Water Co.)	Sterrett Twp., Allegheny Co.	Penn Water Co.,	Braddock Twp., Allegheny Co.	Purchased,	Aug. 16, 1888.
Reedsville Water Co.,	Armagh, Brown & Derry Twps., Mifflin Co.	Burnham Water Co.,	Derry Twp., Mifflin Co.,	Purchased,	Oct. 17, 1900.
		Logan Spring Water Co.,	Brown Twp., Mifflin Co.,	Purchased,	Oct. 17, 1900.
		Milroy Water Co.,	Armagh Twp., Mifflin Co.,	Purchased,	Oct. 17, 1900.
Riverton Consolidated Water Co.,	Merger-Cumberland & York Co's.	Allen Spring Water Co.,	Allen Twp., Cumberland Co.	Merged,	Feb. 17, 1904.
		East Pennsboro Water Co.,	East Pennsboro Twp, Cumberland Co.	Merged,	Feb. 17, 1904.
		Fairview Twp. Water Co.,	Fairview Twp., York Co.,	Merged,	Feb. 17, 1904.
		Mountain Water Co.,	New Cumberland Boro., Cumberland Co.	Merged,	Feb. 17, 1904.
		Riverton Water Co.,	Riverton, Cumberland Co.,	Merged,	Feb. 17, 1904.
		Susquehanna Water Supply Co.	Camp Hill Boro., Cumberland Co.	Merged,	Feb. 17, 1904.
Safe Harbor Water & Power Co.,	Merger-Lancaster Co.,	Millstone Water & Power Co.	Conestoga Twp., Lancaster Co.	Merged,	Sept 15, 1904.
		Rural Water & Power Co.,	Manor Twp., Lancaster Co.	Merged,	Sept 15, 1904.
Saint Clair Water Co.,	Lower Saint Clair Twp., Allegheny Co.	Beltzhoover Water Co.,	Beltzhoover Boro., Allegheny Co.	Purchased,	Mar. 15, 1893.
		Knoxville Water Co.,	Knoxville Boro., Allegheny Co.	Purchased,	Mar. 15, 1893.

TABLE NO. 2—Continued.

Holding Company.		Constituent Companies.			
Name.	Incorporated for.	Name.	Incorporated for.	Form of Consolidation.	Date of Consolidation.
		Lebanon Water Co., ...	Mansfield Boro., Allegheny Co.	Purchased, ...	Mar. 15, 1893.
		Putman Water Co., ...	Chartiers Boro., Allegheny Co.	Purchased, ...	Mar. 15, 1893.
Scranton Gas & Water Co., ...	Providence Twp., Luzerne Co.	Meadow Brook Water Co.,	Scranton City, Lackawanna Co.	Purchased, ...	May 1, 1900.
		Providence Gas & Water Co.	Special Act, ...	Purchased, ...	May 1, 1900.
Shamokin Dam Water Co., ...	Monroe Twp., Snyder Co.,	Hartley Twp. Water Supply Co. of Hartley Twp., Union Co., Pa.	Hartley Twp., Union Co.,	Purchased, ...	Apr. 4, 1907.
		Hartley Water Co. of Hartley Twp., Union Co., Pa.	Hartley Twp., Union Co.,	Purchased, ...	Apr. 4, 1907.
South Chester Water Co., ... The South Chester Water Co. was sold to New Chester Water Co. on Nov. 19, 1906, (See New Chester Water Co.)	South Chester Boro., Delaware Co.	Penn Water Co., ...	N. Chester Boro., Delaware Co.	Purchased, ...	Mar. 21, 1887.
		Upland Water Co., ...	Upland Boro., Delaware Co.	Purchased, ...	Mar. 21, 1887.
Springfield Water Co., ...	Springfield Twp., Delaware Co.	Bryn Mawr Water Co., ..	Lower Merion Twp., Montgomery Co.	Purchased, ...	Aug. 26, 1896.
		Citizens Water Co. of Darby Boro.	Darby Boro., Delaware Co.	Purchased, ...	June 15, 1892.
		Citizens Water Co. of Haverford Twp	Haverford Twp., Delaware Co.	Purchased, ...	Oct. 30, 1901.
		Clifton Heights Water Co.,	Clifton Heights Boro., Delaware Co.	Purchased, ...	Aug. 13, 1896.
		Collingdale Water Co., ...	Collingdale Boro., Delaware Co.	Purchased, ...	Oct. 18, 1900.
		Consumers Water Co. of Marble Twp.	Marple Twp., Delaware Co.	Purchased, ...	Oct. 30, 1901.
		Consumers Water Co. of Upper Darby.	Upper Darby Twp., Delaware Co.	Purchased, ...	June 15, 1892.
		Highland Water Co. of Ridley Twp.	Ridley Twp., Delaware Co.	Purchased, ...	June 15, 1892.

		Lansdowne Water Co., ...	Lansdowne, Delaware Co.,	Purchased, ...	June 14, 1899.
		Penn Water Co. of Sharon Hill Boro.	Sharon Hill Boro., Delaware Co.	Purchased, ...	June 15, 1892.
		Peoples Water Co. of Darby Twp.	Darby Twp., Delaware Co.	Purchased, ...	June 15, 1892.
		Peoples Water Co. of Delaware Co.	Haverford Twp., Delaware Co.	Purchased, ...	Jan. 12, 1904.
		Ridley Park Cold Spring Water Co. of Ridley Park.	Ridley Park Boro., Delaware Co.	Purchased, ...	June 21, 1892.
		Tinicum Water Co., ...	Tinicum Twp., Delaware Co.	Purchased, ...	June 15, 1892.
Summit Water Supply Co., ...	Lilly Boro., Cambria Co.,	Allegheny Mountain Water Co.	Lilly Boro., Washington & Gallitzin Twps., Cambria Co.	Purchased, ...	Aug. 30, 1905.
		Beaverdale Water Co., ...	Adams & Summerhill Twps., Cambria Co.	Purchased, ...	Aug. 30, 1905.
		Cassandra Water Supply Co.	Washington Twp., Cambria Co.	Purchased, ...	Aug. 26, 1905.
		Croyle Water Supply Co.,	Croyle Twp., Cambria Co.,	Purchased, ...	Aug. 26, 1905.
		Dawson Water Supply Co.,	Gallitzin Twp., Cambria Co.	Purchased, ...	Aug. 26, 1905.
		Dean Water Supply Co., ..	Dean Twp., Cambria Co.,	Purchased, ...	Oct. 3, 1905.
		Gwendolen Water Co., ...	Cambria Twp., Cambria Co.	Purchased, ...	Apr. 4, 1907.
		Industrial Water Supply Co.	Adams Twp., Cambria Co.	Purchased, ..	Oct. 3, 1905.
		Luckett Water Supply Co.,	Cresson Twp., Cambria Co.	Purchased, ..	Aug. 26, 1905.
		Mountain Crest Water Co.,	Cresson Twp., Cambria Co.	Purchased, ..	Oct. 3, 1905.
		Munster Water Supply Co.,	Washington Twp., Cambria Co.	Purchased, ..	Oct. 3, 1905.
		Onnalinda Water Co., ...	Onnalinda village, Cambria Co.	Purchased, ...	Aug. 17, 1905.
		Otter Water Supply Co., ..	Adams Twp., Cambria Co.	Purchased, ...	Aug. 26, 1905.
		Sonman Water Supply Co.,	Portage Twp., Cambria Co.	Purchased, ...	Aug. 26, 1905.
		Summerhill Water Supply Co.	Summerhill Twp., Cambria Co.	Purchased, ...	Aug. 26, 1905.
Susquehanna Falls Power Co., ...	Merger-Lancaster and York Co's.	Muddy Creek Water & Power Co.	Lower Chanceford Twp., York Co.	Merged, ...	Aug. 14, 1902.
		Pequa Water and Power Co.	Martic Twp., Lancaster Co.	Merged, ...	Aug. 14, 1902.
Susquehanna River Power Co., ...	Merger-Lancaster & York Co's.	Drumore Water & Power Co.	Drumore Twp., Lancaster Co.	Merged, ...	Aug. 14, 1902.

TABLE NO. 2—Continued.

Holding Company.		Constituent Companies.			
Name.	Incorporated for.	Name.	Incorporated for.	Forms of Consolidation.	Date of Consolidation.
Susquehanna Storage, Lake & Power Co.	Merger-Lancaster & York Co's.	Fulton Water & Power Co.	Fulton Twp., Lancaster Co.	Merged, ...	Aug. 14, 1902.
		Peachbottom Water & Power Co.	Peachbottom Twp., York Co.	Merged, ...	Aug. 14, 1902.
		Chanceford Water & Power Co.	Chanceford Twp., York Co.	Merged, ...	Aug. 14, 1902.
		Conestoga Water & Power Co.	Conestoga Twp., Lancaster Co.	Merged, ...	Aug. 14, 1902.
		Lower Windsor Water & Power Co.	Lower Windsor Twp., York Co.	Merged, ...	Aug. 14, 1902.
		Manor Water & Power Co.,	Manor Twp., Lancaster Co.	Merged, ...	Aug. 14, 1902.
Tarentum Water Co., ... The Tarentum Water Co. was sold on Aug 13, 1906, to Allegheny Valley Water Co. (See Allegheny Valley Water Co.)	Merger-Allegheny Co., ...	East Deer Twp. Water Co.	East Deer Twp., Allegheny Co.	Merged, ...	May 30, 1906.
		Harrison Twp. Water Co.,	Harrison Twp., Allegheny Co.	Merged, ...	May 30, 1906.
		Tarentum Water Co.., ...	Tarentum Boro., Allegheny Co.	Merged, ...	May 30, 1906.
Tipton Water Co., ...	Antis Twp., Blair Co., ..	Merivale Water Supply Co.	Logan Twp., Blair Co., ..	Purchased, ...	June 5, 1905.
Trafford Water Co., ...	Merger-Allegheny & Westmoreland Co's.	Brinton Water Co., ...	Penn Twp., Westmoreland Co.	Merged, ...	Jan. 14, 1902.
		Gallatin Water Co., ...	North Versailles Twp., Allegheny Co.	Merged, ...	Jan. 14, 1902.
		Grant Water Co., ...	East Pittsburg Boro., Allegheny Co.	Merged, ...	Jan. 14, 1902.
		Madison Water Co., ...	Turtle Creek Boro., Allegheny Co.	Merged, ...	Jan. 14, 1902.
		Pitcairn Water Co., ...	Pitcairn Boro., Allegheny Co.	Merged, ...	Jan. 14, 1902.
		Stewart Water Co., ...	North Huntingdon Twp., Westmoreland Co.	Merged, ...	Jan. 14, 1902.
		Trafford Water Co., ...	Patton Twp., Allegheny Co.	Merged, ...	Jan. 14, 1902.
		Wilmerding Water Co., ...	Wilmerding Boro., Allegheny Co.	Merged, ...	Jan. 14, 1902.
Trotter Water Co., ...	Merger-Fayette & Westmoreland Co's.	Trotter Water Co., ...	Dunbar Twp., Fayette Co.	Merged, ...	Sept. 14, 1905.

		Youghgahela Water Co., ..	Merger-Fayette Co., ...	Merged, ...	Sept. 14, 1905.
		Youghiogheny Water Co., ..	Fayette & Westmoreland Co's.	Merged, ...	Sept. 14, 1905.
Trout Run Water Supply Co., ...	Brady Twp., Huntingdon Co.	Barrie Water Supply Co., ..	Porter Twp., Huntingdon Co.	Purchased, ...	Aug. 30, 1905.
		Whitehall Water Supply Co.	Franklin Twp., Huntingdon Co.	Purchased, ...	Aug. 30, 1905.
		Union Water Supply Co. of Oneida Twp.	Oneida Twp., Huntingdon Co.	Purchased, ...	Aug. 30, 1905.
Tyrone Gas & Water Co., ...	Tyrone Boro., Blair Co.,	East Tyrone Water Co., ..	East Tyrone Boro, Blair Co.	Purchased, ...	Dec. 19, 1896.
Union Water Company, ...	Beaver Falls Boro., Beaver Co.	Valley Water Co., ...	Rochester Boro., Beaver Co.	Purchased, ...	Dec. 30, 1892.
Valley Consolidated Water Co., ... The Valley Consolidated Water Co. was sold to the Ohio Valley Water Co. on Aug. 5, 1904, (See Ohio Valley Water Co.)	Allegheny Co., ...	Bellevue Water Co., ...	Bellevue Boro., Allegheny Co.	Purchased, ...	Nov. 7, 1897.
		Riverview Water Co., ...	Avalon Boro., Allegheny Co.	Purchased, ...	Nov. 7, 1897.
Valley Water Company, ... The Valley Water Co. was sold to the Union Water Co. on Dec. 30, 1892. (See Union Water Co.)	Rochester Boro., Beaver Co.	Freedom Water Co., ...	Freedom Boro., Beaver Co.	Purchased, ...	Sept. 24, 1890.
		Phillipsburg Water Co., ..	Phillipsburg Boro., Beaver Co.	Purchased, ...	Sept. 24, 1890.
		Pulaski Water Co., ...	Pulaski Twp., Beaver Co.,	Purchased, ...	Sept. 24, 1890.
		West Side Water Co., ...	Bridgewater Boro., Beaver Co.	Purchased, ...	Sept. 24, 1890.
Western Water Suply Co., ... The Western Water Supply Co. was merged into another Western Water Supply Co. on Sept. 23, 1902, (See below.)	Merger-Fayette & Westmoreland Co's.	Southern Water Supply Co.	Springfield Twp., Fayette Co.	Merged, ...	June 24, 1902.
		Southwestern Water Supply Co.	Springfield Twp., Fayette Co.	Merged, ...	June 24, 1902.
		Western Water Supply Co.,	Westmoreland Co., ...	Merged, ...	June 24, 1902.
Western Water Supply Co., ...	Merger-Fayette, Somerset & Westmoreland Co's.	Laurel Hill Water Supply Co.	Upper Turkeyfoot Twp., Somerset Co.	Merged, ...	Sept. 23, 1902.
		Turkeyfoot Water Supply Co.	Upper Turkeyfoot Twp., Somerset Co.	Merged, ...	Sept. 23, 1902.
		Western Water Supply Co.,	Merger-Fayette & Westmoreland Co's.	Merged, ...	Sept. 23, 1902.
		Western Water Co., ...	Westmoreland Co., ...	Purchased, ...	Dec. 26, 1905.
Womelsdorf Consolidated Water Co., ...	Merger-Berks Co., ...	Robesonia Water Co., ...	Robesonia village, Berks Co.	Merged, ...	Dec. 5, 1904.
		Womelsdorf Water Co., ...	Womelsdorf Boro., Berks Co.	Merged, ...	Dec. 5, 1904.
York County Consolidated Water Co., ..	Merger-York Co., ...	Dallastown Water Co., ...	Dallastown Boro., York Co.	Merged, ...	Apr. 1, 1909.
		Phoenix Water Co., ...	Windsor Boro., York Co.,	Merged, ...	Apr. 1, 1909.
		Yoe Water Co., ...	Yoe Boro., York Co., ...	Merged, ...	Apr. 1, 1909.

TABLE NO. 2—Continued.

Holding Company.		Constituent Companies.			
Name.	Incorporated for.	Name.	Incorporated for.	Forms of Consolidation.	Date of Consolidation.
York Water Co., ...	York. York Co., ...	Meyersville Water Co., ...	Manchester Twp., York Co.	Purchased, ...	Apr. 23, 1897.
		Water Co. of Manchester Twp.	Manchester Twp., York Co.	Purchased, ...	Feb. 15, 1897.
		Water Co. of Spring Garden Twp.	Spring Garden Twp., York Co.	Purchased, ...	Feb. 15, 1897.
		Water Co. of West Manchester Twp.	West Manchester Twp., York Co.	Purchased, ...	Feb. 15, 1897.
Youghgahela Water Co., ... The Youghgahela Water Co. was merged into the Trotter Water Co. on Sept. 14, 1905. (See Trotter Water Co.)	Merger-Fayette Co., ...	Fairchance Water Co., ...	George Twp., Fayette Co.	Merged, ...	July 11, 1905.
		Huron Water Co., ...	German Twp., Fayette Co.	Merged, ...	July 11, 1905.
		Lemont Water Co., ...	North Union Twp., Fayette Co.	Merged, ...	July 11, 1905.
		Redstone Water Co , ...	South Union Twp., Fayette Co.	Merged, ...	July 11, 1905.

TABLE NO. 3.

Active Water and Water Power Companies.

Name.	Supplies.	Source of Supply.	System of Supply.
Aaronsburg Water Co.,	Aaronsburg village, Centre Co.,	Springs,	Gravity.
Abington Water Co.,	Abington Ts., Montgomery Co.,	Operated by Jenkintown Water Co.,	
Allaire Water Company,	Colonia village, Beaver Co.,	Ohio river,	Pumping.
Allegheny Valley Water Co.,	Tarentum, Brackenridge, Creighton, Glassmere and part of Natrona, Allegheny Co.,	Allegheny river,	Gravity.
Allegheny Water Co.,	Millville, So. Altoona, Llyswen, Lakemont Terrace, Lakemont and Sylvan Hills, Blair Co.,	Mill run,	Pumping.
Ambler Spring Water Co.,	Ambler Boro., Montgomery Co.,	Springs,	Gravity and pumping.
Angelica Water and Ice Co.,	Millmont, Boyers Heights, Oakbrook and Brookside, Berks Co.,	Angelica creek,	Pumping.
Annville Water Co.,	Annville village, Lebanon Co.,	Springs and wells,	Gravity and pumping.
Ansonville Water Co.,	Ansonville village, Clearfield Co.,	Springs,	Gravity.
Anthracite Valley Water Co.,	Carbondale Ts., Lackawanna Co.,	Shove creek,	Gravity.
Anthracite Water Co.,	Mahanoy Ts., Schuylkill Co.,	Waste House and Mud runs,	Gravity.
Anthracite Water Co. of Coal Twp.,	Coal Ts., Northumberland Co.,	Leased to and operated by the Roaring Creek Water Co.	
Apollo Water Works Co.,	Apollo Boro., Armstrong Co.,	Beaver run,	Pumping.
Arcadia Water Co.,	Arcadia village, Indiana Co.,	Springs and Shyrock creek,	Gravity and pumping.
Archbald Water Co.,	Archbald Boro., Lackawanna Co.,	System of the Scranton Gas and Water Co.	
Armstrong Water Co.,	Kittanning and Wickboro Boros., Rayburn and Manor Twps., Armstrong Co.,	Allegheny river and springs,	Gravity and pumping.
Arnot Water Co.,	Arnot village and mines, Tioga Co.,	Saw Mill run,	Gravity.
Atglen Water Co.,	Atglen Boro., Chester Co.,	Springs,	Gravity.
Auburn Water Co.,	Auburn Boro., Schuylkill Co.,	Stony and Bear creeks,	Gravity.
Avoca Borough Water Co.,	Avoca Boro., Luzerne Co.,	System of the Spring Brook Water Supply Co.	
Avondale Water Co.,	Avondale Boro., Chester Co.,	Springs,	Pumping.
Axleton Water Co.,	Forward Twp., Allegheny Co.,	Monongahela river,	Pumping.
Bakerton Water Co.,	Bakerton village, Cambria Co.,	Springs,	Gravity.
Bald Eagle Water Co.,	Tyrone Boro., Blair Co.,	Bald Eagle creek,	Pumping.
Bangor Water Co.,	Bangor Boro., Northampton Co.,	West Fork of Martins creek,	Gravity.
Banksville Water Co.,	Union Twp., Allegheny Co.,	Operated by South Pittsburg Water Co.,	
Barnesboro Water Co.,	Barnesboro Boro., Cambria Co.,	Purchase water from Spangler Water Co.,	
Bear Gap Water Co.,	Mount Carmel Twp., Northumberland Co.,	So. Br. Roaring creek,	Pumping.
Beaver Brook Water Co.,	Beaver Brook village, Luzerne Co.,	Drilled wells,	Pumping.
Beaver Creek Water Co.,	Swatara Twp., Dauphin Co.,	Beaver Creek,	Pumping.

TABLE NO. 3—Continued.

Name.	Supplies.	Source of Supply.	System of Supply.
Beaverdam Water Co.,	Gallitzin Twp., Cambria Co.,	Beaverdam and Swartz run,	Gravity.
Beaver Falls Water Power Co.,	Beaver Falls, Beaver Co.,	Beaver river,	Water power.
Beaver Meadow Water Co.,	Beaver Meadow Boro., Carbon Co.,	Drilled wells, springs and Dreck creek,	Gravity and pumping.
Beaver Springs Water Co.,	Beaver Springs village, Snyder Co.,	Springs,	Gravity.
Beaver Valley Water Company,	Beaver and Ohio River Valley, Beaver Co.,	Beaver river,	Pumping.
Beaver Valley Water Company,	Economy Twp., Beaver Co.,	System of Beaver Valley Water Co.,	
Beaver Valley Water Power Co.,	Eastvale Plant of Beaver Valley Water Co.,	Beaver river,	Water power.
Beech Cliff Water Co.,	Baldwin Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Beechwood Water Co.,	West Liberty Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Belle Vernon Water Co.,	Belle Vernon and North Belle Vernon Boros., Washington and Rostraver Twps, Fayette and Westmoreland Co's.,	Monongahela river,	Pumping.
Belleville Water Co.,	Belleville village, Mifflin Co.,	Mountain streams,	Gravity.
Bellevue Water Co.,	Bellevue, Lackawanna Co.,	System of Spring Brook Water Supply Co.,	
Bellwood Water Works Co.,	Bellwood Boro., Blair Co.,	Bells Gap run,	Gravity.
Belmont Water Co.,	Fell Twp., Lackawanna Co.,	Small stream, springs and well,	Gravity.
Ben's Creek Water Co.,	Ben's Creek, Cambria Co.,	Ben's creek,	Gravity.
Berlin Water Co.,	Berlin Boro., Somerset Co.,	Springs and Three Lick run,	Gravity and pumping.
Berry Springs Water Co.,	Lenkerville village, Dauphin Co.,	Springs,	Gravity.
Berwick Water Co.,	Berwick and W. Berwick Boros., N. Berwick, Columbia Co.; Nescopeck Boro., Luzerne Co.,	Glen Brook, Verners run and Susquehanna river,	Gravity and pumping.
Bethel Water Co.,	Bethel Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Bethlehem City Water Co.,	So. Bethlehem and Northampton Heights Boros., Northampton Co.; Fountain Hill and W. Bethlehem Boros., Rittersville and East Allentown, Lehigh Co.,	Lehigh river,	Pumping.
Big Run Water Co.,	Big Run Boro., Jefferson Co.,	Operated by Lindsey Water Co.,	
Biglerville Water Co.,	Biglerville Boro., Adams Co.,	Springs,	Gravity.
Birdsboro Water Co.,	Birdsboro Boro., Berks Co.,	Springs, Hay creek, Indian and Stinsons runs,	Gravity and pumping.
Black Bear Water Co.,	Munson village, Clearfield Co.,	Buy water from Winburne Water Co.,	
Black Lick Water Co.,	Vintondale village, Cambria Co.,	N. Fork of Black Lick creek,	Pumping.
Blackwood Water Co.,	Blackwood, Schuylkill Co.,	Panther and Black creeks,	Gravity and pumping.
Blair Gap Water Supply Co.,	P. R. R. in Blair Co.,	Blairs Gap run, Riggles Gap run and Bells Gap run,	Gravity.
Blakely Water Co.,	Blakely Boro., Lackawanna Co.,	System of Scranton Gas and Water Co.,	
Blandsburg Water Co.,	Reade Twp., Cambria Co.,	P. R. R. system,	
Bloomfield Water and Sewer Co.,	New Bloomfield Boro., Perry Co.,	Springs,	Gravity.

Bloomsburg Water Co.,	Bloomsburg Boro., Columbia Co.,	Fishing creek,	Pumping.
Blossburg Water Co.,	Blossburg Boro., Tioga Co.,	Taylor and Bellman runs,	Gravity.
Blue Mountain Consolidated Water Co.,	Nazareth, Wind Gap and Pen Argyl Boros., Upper and Lower Nazareth Twps., Northampton Co.,	Ross Common crk., springs and drilled wells.	Gravity.
Blue Ridge Water Supply Co.,	Blue Ridge Summitt, Franklin Co.,	Drilled wells,	Pumping.
Blue Ridge Water Supply Co.,	Walnutport village, Northampton Co.,	Springs,	Gravity.
Boalsburg Water Co.,	Boalsburg village, Centre Co.,	Mountain run,	Gravity.
Briar Creek Water Supply Co.,	Briar Creek Twp., Columbia Co.,	Operated by Berwick Water Co.,	
Bridgeport Water Co.,	Bridgeport Boro., Montgomery Co.,	Operated by Norristown Water and Insurance Co.	
Bristol Water Co.,	Bristol Boro., Bucks Co.,	Delaware river,	Pumping.
Broad Mountain Water Co.,	Mahanoy City Boro., Schuylkill Co.,	Springs,	Gravity.
Brockway Crystal Water Co.,	Brockwayville Boro. and village of Crenshaw, Jefferson Co.,	Whetstone run,	Gravity.
Brookville Water Co.,	Brookville Boro., Jefferson Co.,	North Branch creek,	Pumping.
Brownsville Water Co.,	Brownsville and So. Brownsville Boros., Fayette Co., W. Brownsville, Washington Co.,	Monongahela river,	Pumping.
Brush Run Water Co.,	Mt. Pleasant Twp., Westmoreland Co.,	Springs,	Gravity.
Buck Hill Water Co.,	Buck Hill Falls, Monroe Co.,	Buck Hill creek,	Pumping.
Buffington Water Co.,	Wehrum village, Indiana Co.,	Rummels run,	Gravity.
Bundy's Water Co.,	Linesville Boro., Crawford Co.,	Springs and small run,	Pumping.
Bushkill Water Co.,	Bushkill village, Pike Co.,	Springs,	Gravity.
Butcher Spring Water Co.,	New Castle village, Schuylkill Co.,	Butcher creek,	Gravity.
Butler Water Co.,	Butler Boro. and Lyndora village, Butler Co.,	Connoquenessing creek and Thorn run,	Pumping.
California Water Co.,	California Boro., Washington Co.,	Monongahela river,	Pumping.
Cambria County Water Supply Co.,	Mines and mining villages of the Pennsylvania, Beech Creek and Eastern Coal Co. in Cambria Co.,	Numerous streams in Cambria Co.,	Gravity.
Canadensis Water Co.,	Spruce Cabin Inn, Monroe Co.,	Springs,	Gravity.
Canawacta Water Supply Co.,	Susquehanna and Lanesboro Boros., Susquehanna Co.,	Canawacta creek, Drinker creek and springs.	Gravity.
Caponse Water Co.,	Throop Boro., and part of Scranton City, Lackawanna Co.,	System of Scranton Gas and Water Co.,	
Carbondale Water Co.,	Carbondale Twp., Lackawanna Co.,	System of Scranton Gas and Water Co.,	
Carlisle Gas and Water Co.,	Carlisle Boro., Cumberland Co.,	Conodoguinet creek,	Pumping.
Carnegie Water Co.,	Carnegie Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Cashtown Water Co.,	Cashtown village, Adams Co.,	Spring,	Gravity.
Catawissa Water Co.,	Catawissa Boro., Columbia Co.,	Springs and drilled well,	Gravity and pumping.
Center Hall Water Co.,	Center Hall Boro., Center Co.,	Spring,	Gravity.
Central Colliery Water Co.,	Moosic Boro., Lackawanna Co.,	System of Spring Brook Water Supply Co.,	
Centralia Water Co.,	Centralia Boro., Columbia Co.,	Springs,	Gravity.
Central Water Co.,	Menallen Twp., Fayette Co.,	Operated by South West Water Co.,	
Charleroi Water Co.,	Charleroi and North Charleroi Boros., Washington Co.,	Monongahela river,	Pumping.

TABLE NO. 3—Continued.

Name.	Supplies.	Source of Supply.	System of Supply.
Chartiers Valley Water Co.,	Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Chatham Water Co.,	Woolrich, Arris Boro., and Carlton, Clinton Co.,	Chaltham Run,	Gravity.
Cherrytree Water Co.,	Cherrytree Boro., Indiana Co.,	Peg run and Cush Cushion creek,	Gravity and pumping.
Chestnut Ridge Water Co.,	Greentree Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Cheswick Water Co.,	Cheswick village, Allegheny Co.,	Drilled well.	Pumping.
Chichester Water Co.,	Marcus Hook Boro., Delaware Co.,	Operated by New Chester Water Co.,	
Christiana Gravity Water Co.,	Christiana Boro., Lancaster Co.,	Springs,	Gravity.
Citizens Water Co.,	Canton Boro., Bradford Co.,	Trib. of Towanda creek and Lake Nepahwin.	Gravity.
Citizens Water Co.,	Dorranceton Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Citizens Water Co.,	Philipsburg and So. Philipsburg Boros., Rush Twp., Center Co.,	Cold Stream creek,	Gravity.
Citizens Water Co. of Beaver Meadow,	Beaver Meadow Boro., Carbon Co.,	Springs,	Gravity.
Citizens Water Co. of Coburn,	Coburn village, Centre Co.,	Springs,	Gravity.
Citizens Water Co. of Confluence,	Confluence Boro., Somerset Co.,	Drake run,	Gravity.
Citizens Water Co. of Gordon,	Gordon Boro., Schuylkill Co.,	Spring,	Gravity.
Citizens Water Co. of McDonald, Pa.,	McDonald Boro., Washington Co.,	St. Patricks run, Raccoon creek and drilled wells.	Pumping.
Citizens Water Co. of New Bethlehem,	New Bethlehem Boro., Clarion Co.; and So. Bethlehem Boro., Armstrong Co.,	Red Bank creek,	Pumping.
Citizens Water Co. of Scottdale,	Scottdale and vicinity, Westmoreland and Fayette Cos.,	Green Lick, Mountz, Spruce and Butler runs	Gravity.
Citizens Water Co. of Tower City,	Tower City Boro., Schuylkill Co.,	Springs,	Pumping.
Citizens Water Co. of Wapwallopen, Pa.,	Wapwallopen village, Luzerne Co.,	Springs and small run,	Gravity.
Citizens Water Co. of Washington, Pa.,	Washington: North, South, East and West Washington Boros., Canton Twp., Washington Co's.,	Chartiers creek,	Pumping.
Citizens Water and Gas Co. of Williamsport,	Williamsport City, Jaysburg, Newberry and Duboistown, Lycoming Co.,	Mosquito creek,	Gravity.
City of New Castle Water Co.,	New Castle City, Lawrence Co.,	Shenango river,	Pumping.
Clarion Water Co.,	Clarion Boro., Clarion Co.,	Drilled Wells.	Pumping.
Clarks Summit Water Co.,	Clarks Summit village, Lackawanna Co.,	Spring and drilled wells,	Gravity and pumping.
Clear Brook Water Co.,	Kingston Twp., Luzerne Co.,	System of Spring Brook Water Supply Co.,	

Clearfield Water Co.,	Clearfield Boro., Clearfield Co.,	Moose and Montgomery creeks,	Gravity.
Clear Springs Water Co.,	Catasauqua, Alliance and Coplay Boros., Allen, Hanover and Whiteball Twps., Lehigh and Northampton Cos.,	Lehigh river, Spring Mill creek, drilled well and springs.	Gravity and pumping.
Clearview Water Supply Co.,	P.R.R. at Denholm and Narrows, Juniata Co.,	Licking creek,	Gravity.
Cleona Water Co.,	Cleona village, Lebanon Co.,	Springs,	Gravity.
Clymer Water Co. of Indiana,	Indiana Boro. Indiana Co.,	Two Lick creek,	Pumping.
Coburn Water Co.,	Coburn village, Centre Co.,	Mountain run,	Gravity.
Colorus Water Co.,	Buck Mountain and Vulcan, Schuylkill Co.,	Hosensock creek,	Pumping.
Cold Spring Water Co.,	Chester Hill Boro., Clearfield Co.,	Operated by Citizens Water Co.,	....
Colemanville Water and Power Co.,	Conestoga Twp., Lancaster Co.,	Pequa creek,	Water power.
College Hill Borough Water Co.,	College Hill Boro., Beaver Co.,	Operated by Beaver Valley Water Co.,	....
Collier Water Supply Co.,	Collier Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	....
Columbia Water Co.,	Columbia Boro., Lancaster Co.,	Susquehanna river,	Pumping.
Conemaugh and Franklin Water Co.,	Conemaugh and Franklin Boros., Cambria Co.,	Clapboard run,	Gravity.
Connellsville Water Co.,	Connellsville and New Haven Boros., Fayette Co.,	Youghiogheny river, Laurel, Breckneck and Connell runs.	Gravity and pumping.
Conshohocken Gas and Water Co.,	Conshohocken Boro., Montgomery Co.,	Leased to Springfield Consolidated Water Co	....
Consolidated Water Co. of Coudersport,	Coudersport Boro., Potter Co.,	Ross, Reese, Cobb and Niles Hollows, and springs.	Gravity and pumping.
Consolidated Water Supply Co.,	Lackawanna, Luzerne and Susquehanna Co's.,	System of Scranton Gas and Water Co.,	....
Consumers Water Co. of Franklin Twp., Westmoreland Co.,	Export village, Westmoreland Co.,	Turtle creek,	Gravity.
Consumers Water Co., of Montrose, Pa.,	Montrose Boro., Susquehanna Co.,	Jones Lake,	Pumping.
Consumers Water Co. of N. Huntingdon Twp., Westmoreland Co.,	Westmoreland City, Westmoreland Co.,	Brush creek,	Gravity.
Conyngham Water Co.,	Conyngham Boro., Luzerne Co.,	Springs,	Gravity.
Corry Water Supply Co.,	Corry Boro., Erie Co.,	Drilled wells,	Pumping.
Creekside Water Co.,	Creekside village, Indiana Co.,	Springs,	Gravity.
Crescent Beach Water Co.,	Shannopin village, Beaver Co.,	Springs and drilled well,	Gravity and pumping.
Cresson Water Co.,	Cresson Boro., Cambria Co.,	Springs and drilled wells,	Gravity and pumping.
Cross Fork Water Co.,	Cross Forks village, Potter Co.,	Elk Lick run,	Gravity.
Crystal Lake Water Co.,	Carbondale Twp., Lackawanna Co.,	System of Scranton Gas and Water Co.,	....
Crystal Pure Water Co.,	Mill Hall Boro., Clinton Co.,	Operated by West End Water Co.,	....
Crystal Spring Water Co.,	South Wilkes-Barre, Luzerne Co.,	System of Spring Brook Water Supply Co.,	....
Crystal Springs Park Water Co.,	James City village, Elk Co.,	Wind run,	Pumping.
Crystal Water Co.,	Cass, Branch and Foster Twps., Schuylkill Co.,	W. Br. Schuylkill river,	Pumping.
Curwensville Water Co.,	Curwensville Boro., Clearfield Co.,	Lydic, Elk Horn and Hartsborn runs, Anderson creek.	Gravity and pumping.
Dallas Water Co.,	Dallas Boro., Luzerne Co.,	Springs and drilled well,	Gravity.
Dauphin Consolidated Water Supply Co.,	Dauphin Boro. and Susquehanna Twp., Dauphin Co.; Enola Boro., Cumberland Co.,	Stony creek and drilled wells,	Pumping.
Dayton-Greenfield Water Co.,	Williams Twp., Dauphin Co.,	Leased to Williams Valley Water Co.,	....

TABLE NO. 3—Continued.

Name.	Supplies.	Source of Supply.	System of Supply.
Decatur Water Co.,	Decatur Twp., Clearfield Co.,	Operated with Citizens Water Co.,	
Delano Water Co.,	Delano, Delano Junction and Park Place villages, Schuylkill Co.,	N. Br. Mahanoy creek and Mahanoy City Water Co.	Gravity.
Delta Water Power Co.,	Delta, York Co.,	Muddy creek,	Water power.
Derry Water Co.,	Derry Boro. and Derry Twp., Westmoreland Co.,	McGees run, Millwood run and Ethel spring,	Gravity and pumping.
Diamond Water Co. of Hazleton,	West Hazleton Boro., parts of Hazle Twp., and Hazleton City, Luzerne Co.,	Drilled wells,	Pumping.
Dickson City Water Co.,	Dickson City Boro., Lackawanna Co.,	System of Scranton Gas and Water Co.,	
Dillsburg Water Co.,	Dillsburg Boro., York Co.,	Springs,	Gravity.
Disston Water Co.,	Tacony, Philadelphia Co.,	Operated by Philadelphia and Bristol Water Co.	
Domestic Water Co.,	Carroll Twp., Washington Co.,	Leased to Monongahela City Water Co.,	
Donohue Water Co.,	Donohoe Coke Co., at Goff, Westmoreland Co.,	Grahams run,	Pumping.
Donora Water Co.,	Donora Boro., Washington Co.,	Monongahela river,	Pumping.
Drifton Water Co.,	Buck Mountain, Eckley, Drifton, Woodside Addition and Stockton, Luzerne Co.,	Springs and drilled wells,	Gravity and pumping.
Driftwood Water Co.,	Driftwood Boro., Cameron Co.,	Nanny creek,	Gravity.
Dunbar Water Supply Co.,	Dunbar Furnace Co., Fayette Co.,	Dunbar creek and drilled wells,	Gravity and pumping.
Dunbar Water Supply Co.,	Dunbar Twp., Fayette Co.,	Mountain Water Supply Company,	
Dunmore Gas and Water Co.,	Dunmore Boro., Lackawanna Co.,	System of Scranton Gas and Water Co.,	
Dushore Water Co.,	Dushore Boro., Sullivan Co.,	Pain run,	Gravity.
Eagles Mere Water Co.,	Eagles Mere Boro., Sullivan Co.,	Drilled wells and Lewis lake,	Pumping.
East Brady Water Co.,	East Brady Boro., Clarion Co.,	Springs,	Gravity and pumping.
East Buffalo Water Co.,	East Buffalo Twp., Union Co.,	Operated by White Deer Creek Water Supply Co.	
East Butler Water Co.,	East Butler village, Butler Co.,	Drilled well,	Pumping.
East Mauch Chunk Water Co.,	East Mauch Chunk Boro., Carbon Co.,	Ruddle run and drilled well,	Gravity.
East McKeesport Water Co.,	East McKeesport Boro., Allegheny Co.,	Springs,	Pumping.
Eastmere Water Co.,	Eastmere, Dauphin Co.,	Purchase water from City of Harrisburg,	
Easton Water Co.,	Easton City, Northampton Co.,	Springs,	Gravity.
East Wheatfield Water Co.,	Wehrem village, Indiana Co.,	Rummels run,	Gravity.
Eddystone Water Co.,	Eddystone Boro., Delaware Co.,	Operated by Springfield Consolidated Water Co.	
Edgemont Water Co.,	Chester Twp., Delaware Co.,	Operated by New Chester Water Co.,	
Edgeworth Water Co.,	Edgeworth & Leetsdale Boros., Shields and Fairoaks, Allegheny Co.,	Ohio river,	Pumping.
Edna Water Co.,	Edna No. 2, Westmoreland Co.,	Small stream and springs,	Gravity and pumping.

Edwardsville Water Co.,	Edwardsville Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Elizabethtown Water Co.,	Elizabethtown Boro., Lancaster Co.,	Springs and drilled well,	Pumping.
Elizabethville Water Co.,	Elizabethville Boro., Dauphin Co.,	Springs,	Gravity.
Ellwood Water Co.,	Elwood City Boro., Lawrence Co.,	Slippery Rock creek,	Pumping.
Emlenton Water Co.,	Emlenton Boro., Venango Co.,	Drilled wells and Allegheny river,	Pumping.
Emporium Water Co.,	Emporium Boro., Cameron Co.,	Towner and Salt runs, West Creek,	Gravity and pumping.
Everett Water Co.,	Everett Boro., Bedford Co.,	Springs and drilled well,	Pumping.
Extension Water Co. of Penbrook,	Penbrook Boro., Dauphin Co.,	Purchase water from Paxtang Consolidated Water Co.,	
Fairview Water Co.,	Mt. Pocono village, Monroe Co.,	Wilsons Spring,	Pumping.
Fall Brook and Newton Water Co.,	Carbondale City, Lackawanna Co.,	System of Scranton Gas and Water Co.,	
Fallston Water Co.,	Fallston, Beaver Co.,	Beaver river,	Water power.
Fallston Water Co.,	Fallston Boro., Beaver Co.,	Operated by Beaver Valley Water Co.,	
Farmers Water Co.,	Mifflin Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Fayette City Water Co.,	Fayette City Boro., Fayette Co.,	Drilled wells along river,	Pumping.
Fayetteville Water Co.,	Fayetteville village, Franklin Co.,	Cold Spring Hollow run,	Gravity.
Federal Water Co.,	Marshalsea, Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Fernbrook Water Co.,	Carbondale City, Lackawanna Co.,	Operated by Belmont Water Co.,	
Findley Run Water Supply Co.,	East Wheatfield Twp., Indiana Co.,	Findley run,	Gravity.
Flat Rock Water Co.,	St. Michael village, Cambria Co.,	Topper run,	Gravity.
Flint Hill Water Co.,	Bowers Station, Berks Co.,	Spring,	Gravity.
Forestville Water Co.,	Lytle village, Schuylkill Co.,	Minersville Water Co. and Crystal Water Co.	Gravity.
Forty Fort Water Co.,	Forty Fort Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Foxburg Water Works Co.,	Foxburg village, Clarion Co.,	Drilled wells,	Pumping.
Frailey Water Co.,	Middle Creek village, Schuylkill Co.,	Middle creek,	Gravity.
Franklin Township Water Co.,	Franklin Twp., Fayette Co.,	Allen run,	Gravity.
Franklin Water Co.,	Applewold Boro., Armstrong Co.,	Springs,	Gravity.
Fredericksburg Water Co.,	Fredericksburg village, Lebanon Co.,	Drilled well,	Pumping.
Frederickstown Water Co.,	Frederickstown and Newtown villages, Washington Co.,	Monongahela river,	Pumping.
Freedom Water Co.,	Freedom Boro., Beaver Co.,	Operated by Beaver Valley Water Co.,	
Freeland Water Co.,	Freeland Boro. and So. Heberton village, Luzerne Co.,	Drilled wells,	Pumping.
Freeport Water Works Co.,	Freeport Boro., Armstrong Co.,	Allegheny river,	Pumping.
Furnace Water Co.,	Burrell Twp., Indiana Co.,	Black Lick creek,	Pumping.
Galeton-Eldred Water Co.,	Galeton Boro., Potter Co.; and Eldred Boro., McKean Co.,	Beech Flat, Falling Springs, Johnsons Hollow and Tom Cabin Hollow runs, Pine creek and springs.	Gravity and pumping.
Gallitzin Water Co.,	Gallitzin Boro., Cambria Co.,	Bradleys run,	Pumping.
Garfield Water Co.,	Garfield village, Indiana Co.,	Operated by Mace Springs Water Co. of Bolivar.	
Garrett Water Co.,	Garrett Boro., Somerset Co.,	Bixie run,	Gravity.
General Water Co.,	Redstone and Luzerne Twps., Fayette Co.,	Monongahela river,	Pumping.
Genesee Citizens Water Co.,	Genesee village, Potter Co.,	Springs,	Gravity.
Germania Water Co.,	Mt. Oliver Boro., Allegheny Co.,	Operated by So. Pittsburgh Water Co.,	
Gettysburg Water Co.,	Gettysburg Boro., Adams Co.,	Marsh creek and drilled wells,	Pumping.

TABLE NO. 3—Continued.

Name.	Supplies.	Source of Supply.	System of Supply.
Girard Water Co., of Schuylkill Co.,	West Mahanoy and Union Twps., Schuylkill Co.,	Lost creek, Raven run and Catawissa creek,	Gravity and pumping.
Gladehurst Water Co.,	Somerset Twp., Somerset Co.,	Springs,	Pumping.
Glenside Water Co.,	Glenside village, Berks Co.,	Purchase water from Reading City,	
Glen Water Co.,	Glen Campbell Boro., Indiana Co.,	Brady run,	Pumping.
Good Spring Water Co.,	Porter Twp., Schuylkill Co.,	Springs and small streams,	Pumping.
Goodwin Water Co.,	Upper St. Clair Twp., Allegheny Co.,	Operated by So. Pittsburgh Water Co.,	
Great Bend Water Co.,	Great Bend Boro., Susquehanna Co.,	Operated with Hallstead Water Co.,	
Green Briar Water Co.,	Conemaugh Twp., Cambria Co.,	System Summitt Water Supply Co.,	
Greenburr Water Co.,	Greenburr village, Clinton Co.,	Rahls Gap run,	Gravity.
Greencastle Water Co.,	Greencastle Boro., Franklin Co.,	Springs,	Gravity.
Green Tree Water Co.,	Green Tree Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Greenville Water Co.,	Greenville Boro., Mercer Co.,	Spring run and Little Shenango river,	Gravity and pumping.
Grill Water Co.,	Grill village, Berks Co.,	Springs,	Gravity.
Halifax Water Co.,	Halifax Boro., Dauphin Co.,	Spring,	Gravity.
Hallstead Water Co.,	Hallstead Boro., Susquehanna Co.,	DuBois creek, Mingo Lake and Susquehanna river,	Gravity and pumping.
Hamilton Water Co.,	Saylorsburg village, Monroe Co.,	Springs,	Gravity.
Hanover and McSherrystown Water Co.,	Hanover Boro., York Co., and McSherrystown Boro., Adams Co.,	Springs and W. Br. of Codorus creek,	Gravity and pumping.
Hanover Water Co.,	Hanover Twp., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Harmony Water Co.,	Economy, Beaver Co.,	Dug wells along river,	Pumping.
Harveys Lake Water Supply Co.,	Wyoming Valley, Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Harwood Water Co.,	Sheraden Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Hastings Water Co.,	Hastings Boro., Cambria Co.,	Scotch run,	Gravity.
Hatboro Water Co.,	Hatboro Boro., Montgomery Co.,	Drilled wells,	Pumping.
Hawley Water Co.,	Hawley Boro., Wayne Co.,	Springs,	Gravity.
Haysville Water Co.,	Haysville Boro., and part of Osburne Boro., Allegheny Co.,	Haysville run,	Gravity.
Hays Water Co.,	Hays Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Hazlehurst Water Co.,	Hazlehurst village, McKean Co.,	Springs and small run,	Gravity.
Hazleton Water Co.,	Hazleton City, Luzerne Co.,	Beisels, Cross and Boyds runs, Quakake creek, springs and drilled wells,	Pumping.
Heidelberg Water Co.,	Heidelberg Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Heights Water Co.,	Heights village, Lebanon Co.,	Lebanon Valley Consolidated Water Supply Co.	

Hellam Water Co.,	Hellam village, York Co.,	Springs and Krentz creek,	Gravity.
Henrietta Water Co.,	Marsteller village, Cambria Co.,	Moss creek,	Gravity.
Herndon Water Co.,	Herndon Boro., Northumberland Co.,	Springs,	Gravity.
Hibbs Water Co.,	Menallen Twp., Fayette Co.,	Saltlick creek,	Pumping.
Highland Water Co.,	Crafton Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	....
High Ridge Water Supply Co.,	St. Clair Twp., Westmoreland Co.,	Big Spring and Laurel runs, trib. Mill creek,	Gravity.
Highspire Water Co.,	Highspire Boro., Dauphin Co.,	Springs,	Gravity.
Hill Top Water Supply Co.,	Knoxville Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	....
Holmesburg Water Co.,	Holmesburg, Philadelphia Co.,	Operated by Philadelphia and Bristol Water Co.	....
Home Water Co. of Royersford,	Spring City Boro., Chester Co.,	Schuylkill river,	Pumping.
Home Water Co. of So. Philipsburg, Center Co., Pa.,	South Philipsburg Boro., Center Co.,	Citizens Water Company,	....
Home Water Co.,	Royersford Boro., Montgomery Co.,	Schuylkill river,	Pumping.
Home Water Supply Co.,	Blair village, Blair Co.,	Green Spring stream,	Gravity.
Honesdale Consolidated Water Co.,	Honesdale Boro., Wayne Co.,	First, Second, Third and Cajaw Ponds,	Gravity.
Honey Brook Water Co.,	Honey Brook, McAdoo, Audenried, Beaver Brook and Park View, Carbon and Schuylkill Co's.,	Springs and drilled wells,	Pumping.
Houtzdale Water Co.,	Houtzdale Boro., Clearfield Co.,	Drilled well,	Pumping.
Hughestown Borough Water Co.,	Hughestown Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	....
Hughesville Home Water Co.,	Hughesville Boro., Lycoming Co.,	Dug and drilled wells,	Pumping.
Hummelstown Consolidated Water Co.,	Hummelstown Boro., Dauphin Co.,	Swatara creek,	Pumping.
Hunter Run Water Co.,	Rockport, Carbon Co.,	Hunter run,	Gravity.
Huntingdon Water Supply Co.,	Huntingdon Boro., and Smithfield village, Huntingdon Co.,	Standing Stone creek,	Pumping.
Hyndman Water Co.,	Hyndman Boro., Bedford Co.,	Laurel run and drilled wells,	Gravity and pumping.
Idlewood Water Co.,	Chartiers Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	....
Irwin Water Co.,	Irwin Boro., Westmoreland Co.,	System of Westmoreland Water Co.,	....
Ivy View Water Co.,	Cresson Boro., Cambria Co.,	Springs,	Pumping.
Jacks Mountain Water Co.,	Mapleton Boro., Huntingdon Co.,	Spring and Scrub run,	Gravity.
Jackson Water Co.,	Vintondale Boro., Cambria Co.,	Sherman run,	Gravity.
Jenkins Township Water Co.,	Jenkins Twp., Luzerne Co.,	System of Spring Brook Water Supply Co.,	....
Jenkintown Water Co.,	Jenkintown Boro., Abington and Cheltenham Twps., Montgomery Co.,	Drilled wells,	Pumping.
Jermyn and Rush Brook Water Co.,	Jermyn and Mayfield Boros., Lackawanna Co.,	System of Scranton Gas and Water Co.,	....
Jersey Shore Water Co.,	Jersey Shore and Salladasburg, Laryville village, Lycoming Co.; Oak Grove village, Clinton Co.,	Larrys creek, Aughenbaughs run and Pine creek.	Gravity and pumping.
Jessop Water Co.,	Canton Twp., Washington Co.,	Operated by Citizens Water Co. of Washington.	....
Johnsonburg Water Co.,	Johnsonburg Boro. and Rolfe village, Elk Co.,	Silver creek and Powers run,	Gravity and pumping.
Johnstown Water Co.,	Johnstown City and vicinity, Cambria Co.,	Mill creek, Dalton run, St. Clair run, Conemaugh river, Laurel run, Wild Cat run and Salt Lick run.	Gravity.
Josephine Water Co.,	Josephine village, Indiana Co.,	Drilled wells,	Pumping.

TABLE NO. 3—Continued.

Name.	Supplies.	Source of Supply.	System of Supply.
Juniata Water and Water Power Co.,	Smithfield Twp., Huntingdon Co.,	Frankstown Br. Juniata river,	Water power.
Kalorama Water Co.,	N. Franklin Twp., Washington Co.,	Operated by Citizens Water Co. of Washington.	
Kelly Water Co.,	Kelly Twp., Union Co.,	Operated by White Deer Creek Water Supply Co.	
Kensington Water Co.,	New Kensington, Parnassus and Arnold Boros., Valley Camp village, Westmoreland Co.,	Allegheny river,	Pumping.
Kingston Water Co.,	Edwardsville Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Kutztown Water Co.,	Kutztown Boro., Berks Co.,	Kemps run, springs and drilled well,	Pumping.
Lackawanna Valley Water Supply Co.,	Lackawanna and Susquehanna Co's.,	System of Scranton Gas and Water Co.,	
Lafayette Water Co.,	Chartiers Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Laflin Water Co.,	Jenkins Twp., Luzerne Co.,	System of Spring Brook Water Supply Co,	
Lanesboro Water Co.,	Lanesboro Boro., Susquehanna Co.,	Leased to Canawacta Water Supply Co.,	
Langhorne Spring Water Co.,	Langhorne, Langhorne Manor, and Attleboro Boros., Bucks Co.,	Springs,	Pumping.
Lansdale Water Co.,	Lansdale Boro., Montgomery Co.,	Drilled wells,	Pumping.
Latrobe Water Co.,	Latrobe Boro., Bradenville, Dorothy, Oakville, Loyalhanna, McChesneytown and W. Latrobe, Westmoreland Co.,	Loyalhanna creek,	Pumping.
Laurel Run Water Co.,	Wilkes-Barre Twp., Luzerne Co.,	Laurel run,	Gravity.
Lebanon Heights Water Co.,	Scott Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Lebanon Valley Consolidated Water Supply Co.,	Avon, Hebron, East Lebanon and Weavertown, Lebanon Co.,	Drilled wells,	Pumping.
Lebanon Water Co.,	North Lebanon Twp., Lebanon Co.,	Quitapahilla creek, Clarkes run, well and spring.	Gravity and pumping.
Leechburg Water Works Co.,	Leechburg Boro., Armstrong Co.,	Beaver run,	Pumping.
Lehighton Water Co.,	Lehighton Boro., Carbon Co.,	Operated by Lehighton Water Supply Co.,	
Lehighton Water Supply Co.,	Lehighton and Weissport Boro., Carbon Co.,	Springs, Long run, Pine run, Wild creek and Little Bear creek.	Gravity.
Lehigh Water Co.,	Easton City, West Easton Boro. and Palmer Twp., Northampton Co.,	Delaware river,	Pumping.
Lewisburg Water Co.,	Lewisburg Boro., Union Co.,	Operated by White Deer Creek Water Supply Co.	
Lewistown-Reedsville Water Co.,	Lewistown Boro., Granville Twp., Derry Twp., Brown Twp., and Armagh Twp., Mifflin Co.,	Minehart run, Laurel run, Coopers Gap and Treaster Valley run.	Gravity.
Lewisville Water Co.,	Lewisville Boro., Potter Co.,	Springs,	Gravity and pumping.
Lindsey Water Co.,	Punxsutawney and Big Run Boros., Jefferson Co.,	Clover run, E. Br. Clover run and Mahoning creek.	Gravity and pumping.

Locust Mountain Water Co.,	Conyngham Twp., Columbia Co.,	So. Br. Roaring creek,	Pumping.
Londonderry Water Co.,	Palmyra village, Lebanon Co.,	Drilled wells and springs,	Gravity.
Lower St. Clair Water Co.,	Lower St. Clair Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Lumber City Water Co.,	Austin Boro., Potter Co.,	Freemans creek, drilled wells and spring,	Gravity and pumping.
Luzerne Water Co.,	Luzerne Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Lykens Water Co.,	Lykens Boro., and Wiconisco village, Dauphin Co.,	Rattling creek,	Gravity.
Lyons Water Co.,	Lyons village, Berks Co.,	Springs,	Gravity.
Mace Springs Water Co., of Bolivar, Pa.,	Bolivar Boro., and West Bolivar village, Westmoreland Co.; Garfield village, Indiana Co.,	Mountain streams,	Gravity.
Madera Water Co.,	Madera village, Clearfield Co.,	Springs,	Gravity.
Mahanoy City Water Co.,	Mahanoy City Boro., Schuylkill Co.,	Messers, Negro Hollow, Coal and Pole runs,	Gravity and pumping.
Manheim Water Co.,	Manheim Boro., Lancaster Co.,	Rief run,	Pumping.
Mansfield Water Co.,	Mansfield Boro., Tioga Co.,	Lambs creek and Taylor run,	Gravity and pumping.
Manufacturers Water Co.,	Cambria Steel Co., Cambria Co.,	Conemaugh river, Little Conemaugh river, Stony creek and Hinckston run.	Gravity.
Manwalamink Water Co.,	Shawnee village, Monroe Co.,	Springs,	Gravity and pumping.
Mapleton Water Co.,	Mapleton Boro., Huntingdon Co.,	Springs,	Gravity.
Marcy Township Water Co.,	Marcy Twp., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Marianna Water Co.,	Marianna village, Washington Co.,	Ten mile creek,	Pumping.
Marie Water Co.,	Twin Rocks village, Cambria Co.,	Coal Pit run, spring and drilled wells,	Gravity and pumping.
Marietta Gravity Water Co.,	Marietta Boro., Lancaster Co.,	Wild Cat run, Dugans run and springs,	Gravity and pumping.
Marion Heights Water Co.,	Marion Heights Boro., Northumberland Co.,	Bear Gap Water Company,	
Martindale Water Co.,	Portage Boro., Cambria Co.,	Trout run and Ivy run,	Gravity.
Martinsburg Water Co.,	Martinsburg Boro., Blair Co.,	Plum creek,	Gravity.
Marysville Water Co.,	Marysville Boro., Perry Co.,	Trout run, Beers spring and Susquehanna river.	Gravity and pumping.
Mauch Chunk Water Co.,	Mauch Chunk Boro., Carbon Co.,	Mauch Chunk creek, springs and artesian well.	Gravity.
Mayfield Water Co.,	Mayfield Boro., Lackawanna Co.,	System of Scranton Gas and Water Co.,	
McConnellsburg Water Co.,	McConnellsburg Boro., Fulton Co.,	Spring run,	Gravity.
Mechanicsburg Gas and Water Co.,	Mechanicsburg Boro., Cumberland Co.,	Yellow Breeches creek,	Pumping.
Mechanics Water Co.,	West Homestead Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Menallen Water Co.,	Menallen Twp., Fayette Co.,	Fans run,	Pumping.
Mercer Water Co.,	Mercer Boro., Mercer Co.,	Otter creek,	Pumping.
Mercersburg Water Co.,	Mercersburg Boro., Franklin Co.,	Trout run,	Gravity.
Meshoppen Borough Water Co.,	Meshoppen Boro., Wyoming Co.,	Little Meshoppen creek,	Gravity.
Middleburg Water Co.,	Middleburg Boro., Snyder Co.,	Spring runs,	Gravity.
Middletown and Swatara Consolidated Water Co.,	Middletown and Royalton Boros., Dauphin Co.,	Iron Mine run and Swatara creek,	Gravity and pumping.
Midland Water Co.,	Midland Boro., Beaver Co.,	Ohio river,	Pumping.
Mifflintown Water Co.,	Mifflintown Boro., Juniata Co.,	Mountain stream,	Gravity.
Milford Cold Spring Water Co.,	Milford Boro., Pike Co.,	Cold Spring,	Gravity.
Millcreek Water Co.,	Sheridan village, Lebanon Co.,	Womelsdorf Consolidated Water Co.,	
Millersburg Home Water Co.,	Millersburg Boro., Dauphin Co.,	Weavers run, mountain stream, springs and drilled wells.	Pumping.
Millheim Water Co.,	Millheim Boro., Center Co.,	Philips creek,	Gravity.

TABLE NO. 3—Continued.

Name.	Supplies.	Source of Supply.	System of Supply.
Millville Water Co.,	Millville Boro., Columbia Co.,	Dug well,	Pumping.
Milnesville Water Co.,	Milnesville, Lattimer and Hollywood, Luzerne Co.,	Drilled wells,	Pumping.
Miners Mills Water Co.,	Miners Mills Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Minersville Water Co.,	Minersville Boro., Cass, New Castle, and Branch Twps., Schuylkill Co.,	Dyers run, Wagners run and Wheeler creek.	Gravity.
Minooka Water Co.,	Minooka village, Lackawanna Co.,	System of Spring Brook Water Supply Co.,	
Mohnsville Water Co.,	Mohnton, Edison and Shillington, Berks Co.,	Kleinginney creek, drilled wells and springs.	Gravity and pumping.
Monessen Water Co.,	Monessen Boro. and Rostraver Twp., Westmoreland Co.,	Monongahela river,	Pumping.
Monongahela City Water Co.,	Monongahela City Boro., New Eagle village, Washington Co.,	Monongahela river,	Pumping.
Monongahela Valley Water Co.,	Elizabeth, West Elizabeth, Glassport, McKeesport (10th ward), Clairton and Dravosburg Boros., Jefferson, Mifflin and Lincoln Twps., Allegheny Co.,	Monongahela river,	Pumping.
Monongahela Water Co.,	20th ward of Pittsburg City, McKees Rocks Boro., Stowe Twp., Allegheny Co.,	Ohio river and drilled wells along river,	Pumping.
Monroe Co. Water Power and Supply Co.,	Stroudsburg Boro., Monroe Co.,	Brodhead creek,	Water power.
Monroe Co. Water Supply Co.,	Stroudsburg Boro., Monroe Co.,	Leased to Stroudsburg Water Supply Co.,	
Monroe Water Supply Co.,	Monroe and Luzerne Co's.,	Lehigh river,	Storage.
Montandon Water Co.,	Montandon village and Chillisquaque Twp., Northumberland Co.,	Operated by White Deer Creek Water Supply Co.	
Monterey Water Co.,	Monterey village, Franklin Co.,	Drilled wells,	Pumping.
Montgomery Water Co.,	Montgomery Boro., Lycoming Co.,	Drilled wells,	Pumping.
Montola Water Co.,	Rush Twp., Center Co.,	Trout run,	Gravity.
Montooth Water Co.,	Montooth Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Moore Water Co.,	Plum Twp., Allegheny Co.,	Leased to the Suburban Water Co. of Allegheny Co., Pa.	
Moosic Mountain Water Co.,	Winton Boro. and Jessup village, Lackawanna Co.,	Sterry creek,	Gravity.
Moosic Water Co.,	Moosic Boro., Lackawanna Co.,	System of Spring Brook Water Supply Co.,	
Morea Water Co.,	Morea village, Schuylkill Co.,	Drilled wells,	Pumping.
Moreland Spring Water Co.,	Moreland Twp., Montgomery Co.,	Operated by Jenkintown Water Co.,	
Morrellville and Cambria Borough Water Co.,	Johnstown City, Cambria Co.,	St. Clair run and drilled well,	Gravity and pumping.
Morris Water Co.,	Morris Twp., Clearfield Co.,	Operated by Citizens Water Co.,	

Moscow Water Co.,	Moscow Boro., Lackawanna Co.,	La Touche creek,	Gravity.
Moss Glen Water Co.,	Schuylkill Twp., Schuylkill Co.,	Big creek,	Gravity.
Mountain Brook Water Co.,	Kingston Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	....
Mountain City Water Co.,	Frackville Boro., Schuylkill Co.,	Drilled well,	Pumping.
Mountain Crystal Water Co.,	East Taylor Twp., Cambria Co.,	Summit Water Supply Co.,	....
Mountain Home Water Co.,	Mountain Home village, Monroe Co.,	Springs,	Pumping.
Mountain Water Co.,	Emaus Boro., Lehigh Co.,	Springs,	Gravity.
Mountain Water Co.,	Milton Boro., Turbot and West Chillisquaque Twps., Northumberland Co.,	Operated by White Deer Creek Water Supply Co.	....
Mountain Water Supply Co.,	Fayette, Westmoreland, Washington and Allegheny Co's.,	Indian creek,	Gravity.
Mt. Carmel Water Co.,	Mt. Carmel Boro. and Twp., Northumberland Co.,	Springs, drilled wells, Bear Gap Water Co. and Locust Mountain Water Co.	Gravity.
Mount Holly Water Co.,	Mount Holly Springs Boro., Cumberland Co.,	Spruce run,	Gravity.
Mt. Jewett Water Co.,	Mt. Jewett Boro., McKean Co.,	Springs and drilled wells,	Pumping.
Mt. Penn Suburban Water Co.,	Mt. Penn Boro., Stony Creek and Black Bear villages, Berks Co.,	Springs and small stream,	Gravity.
Mount Pleasant Water Co.,	Mount Pleasant Boro. and vicinity, Westmoreland Co.,	Jacobs creek,	Pumping.
Mount Union Water Co.,	Mount Union Boro., Huntingdon Co.,	Jacks Spring run,	Gravity.
Muncy Water Supply Co.,	Muncy Boro., Lycoming Co.,	Glade run and Susquehanna river,	Gravity and pumping.
Myerstown Water Co.,	Myerstown Village, Lebanon Co.,	Spring and pond,	Pumping.
Nanticoke Water Co.,	Nanticoke Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	....
Nanty-y-Glo Water Co.,	Nant-y-Glo village, Cambria Co.,	Stewart run,	Gravity.
Natrona Water Co.,	Natrona Boro. and Birdville village, Allegheny Co.,	Springs,	Gravity and pumping.
Nescopeck Water Supply Co.,	Nescopeck Twp., Luzerne Co.,	Operated by Berwick Water Co.,	....
Nether Providence Water Co.,	Moylan village, Delaware Co.,	Purchase water from Media Borough,	....
New Albany Water Co.,	New Albany Boro., Bradford Co.,	Springs,	Gravity.
New Brighton Water Co.,	New Brighton, Beaver Co.,	Beaver river,	Water power.
New Brighton Water Co.,	New Brighton Boro., Beaver Co.,	System of Beaver Valley Water Co.,	....
New Chester Water Co.,	Chester City, Upland Boro., Linwood Boro., Marcus Hook Boro., Chester Twp., Delaware Co.,	Delaware river,	Pumping.
New Florence Water Co.,	New Florence Boro., Westmoreland Co.,	Baldwin run,	Gravity.
New Holland Water Co.,	New Holland Boro., Lancaster Co.,	Spri [illegible]	Gravity.
Newmanstown Water Co.,	Newmanstown village, Lebanon Co.,	Gold Spring stream and springs,	Gravity.
New Milford Water Co.,	New Milford Boro., Susquehanna Co.,	Springs and East Lake creek,	Gravity.
Newport Home Water Co.,	Newport Boro., Perry Co.,	Springs and Spring run,	Gravity.
New Salem Water Co.,	Menallen Twp., Fayette Co.,	Saltlick creek,	Pumping.
Newtown Artesian Water Co.,	Newtown Boro., Bucks Co.,	Drilled wells,	Pumping.
Newville Water Co.,	Newville Boro., Cumberland Co.,	Cool spring,	Pumping.
New Wilmington Water Supply Co.,	New Wilmington Boro., Lawrence Co.,	Springs and drilled wells,	Gravity and pumping.

TABLE NO. 3—Continued.

Name.	Supplies.	Source of Supply.	System of Supply.
Niagara Water Co.,	Sheraden Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Nicholson Water Co.,	Nicholson Boro., Wyoming Co.,	Horton creek and Tunkhannock creek,	Gravity and Pumping.
Nippenose Water Co.,	Nippenose Twp., Lycoming Co.,	System of Jersey Shore Water Co.,	
Nokomis Water Co.,	Factoryville Boro., Wyoming Co.,	Sheik pond,	Gravity.
Norristown Insurance & Water Co.,	Norristown and Bridgeport Boros., Montgomery Co.,	Schuylkill river,	Pumping.
North Abington Water Co.,	Dalton Boro., Lackawanna Co.,	Springs and drilled wells,	Pumping.
North Coventry Water Co.,	South Pottstown village, Chester Co.,	Operated by Pottstown Gas and Water Co.,	
North Huntingdon Water Co.,	North Huntingdon Twp., Westmoreland Co.,	System of Westmoreland Water Co.,	
North Irwin Water Co.,	North Huntingdon Twp., Westmoreland Co.,	Tinker run,	Gravity.
North Manheim Water Co.,	North Manheim Twp., Schuylkill Co.,	Plum creek,	Gravity.
North Mountain Water Supply Co.,	Luzerne Co.,	System of Spring Brook Water Supply Co.,	
North Rochester Water Co.,	Rochester Twp., Beaver Co.,	System of Beaver Valley Water Co.,	
North Springfield Water Co.,	Springfield Twp., Montgomery Co.,	System of Springfield Consolidated Water Co.	
North Strabane Water Co.,	Cannonsburg and So. Cannonsburg Boros., Cecil, Chartiers and North Strabane Twps., Washington Co.,	Little Chartiers creek,	Pumping.
Northern Cambria Water Co.,	Susquehanna Twp., Cambria Co.,		
Northumberland Water Co.,	Northumberland Boro., Northumberland Co.,	Johnsons run and springs,	Gravity and Pumping.
North Wales Water Co.,	North Wales Boro., Montgomery Co.,	Drilled wells,	Pumping.
Oakland Water Co.,	Oakland Boro., Susquehanna Co.,	Springs and drilled well,	Gravity and Pumping.
Oak Ridge Water Co.,	Carbondale City, Lackawanna Co.,	System of Scranton Gas and Water Co.,	
Oakwood Water Co.,	Crafton Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Octoraro Water Co.,	Chester and Lancaster Co's., P. R. R.,	Octoraro creek,	Pumping.
Ogontz Water Co.,	Cheltenham Twp., Montgomery Co.,	Operated by Jenkintown Water Co.,	
Ohio Valley Water Co.,	Bellevue Boro., West View, Avalon Boro., Ben Avon Boro., Emsworth Boro., McKees Rocks Boro., Ross Twp. and Stowe Twp., Allegheny Co.,	Drilled wells along river,	Pumping.
Old Forge Borough Water Co.,	Old Forge Boro., Lackawanna Co.,	System of Spring Brook Water Supply Co.	
Olyphant Water Co.,	Olyphant Boro., Lackawanna Co.,	System of Scranton Gas and Water Co.,	
Oneida Water Co.,	East Union Twp., Schuylkill Co.,	Mud run and drilled well,	Pumping.
Osceola Water Supply Co.,	Osceola Boro., Clearfield Co.; Rush Twp., Centre Co.,	Trout run,	Gravity.
Oswayo Water Co.,	Oswayo Boro., Potter Co.,	Springs,	Gravity.
Otto Water Co.,	Reily Twp., Schuylkill Co.,	Crystal Water Company,	
Paint Township Water Co.,	Scalp Level, Somerset Co.,	Operated by Windber Water and Power Co.	

Palmer Water Company,	Palmerton village, Carbon Co.,	Pohopoco creek,	Pumping.
Panhandle Water Co.,	Esplen Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Panther Creek Water Co.,	Fell Twp., Lackawanna Co.,	System of Scranton Gas and Water Co.,	
Panther Valley Water Co.,	Mines and mining villages of Lehigh Coal and Navigation Co. in Carbon and Schuylkill Co's.	Nesquehoning creek and tributaries,	Gravity and Pumping.
Parker City Water Co.,	Parker City Boro., Armstrong Co.,	Allegheny river,	Pumping.
Parkesburg Water Co.,	Parkersburg Boro., Chester Co.,	Drilled wells,	Pumping.
Parkside Water Supply Co.,	Parkside village, Monroe Co.,	W. Br. Brodheads creek,	Water power.
Parsons Water Co.,	Parsons Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Patterson Heights Water Co.,	Patterson Heights Boro., Beaver Co.,	Operated by Beaver Valley Water Co.,	
Patterson Water Co.,	Patterson Boro., Juniata Co.,	Mifflintown Water Co.,	
Patton Water Co.,	Patton Boro., Cambria Co.,	Chest creek and Flannagan run,	Gravity and Pumping.
Paulton Water Co.,	West Apollo and Paulton, Westmoreland Co.,	Beaver run,	Pumping.
Paxtang Consolidated Water Co.,	Paxtang village, Dauphin Co.,	Purchase water from Eastmere Water Co.,	
Penn Borough Water Co.,	Penn Boro., Westmoreland Co.,	Operated by Westmoreland Water Co.,	
Pennsburg Water Co.,	Pennsburg Boro., Montgomery Co.,	Springs,	Gravity.
Pennsylvania Power Co.,	Ellwood City Boro., Lawrence Co.,	Connoquenessing creek,	Water power.
Pennsylvania Water Co.,	13th ward Pittsburg City, Wilkinsburg, Swissvale, Edgewood, North Braddock, Bessemer Terrace, East Pittsburg, Turtle Creek, North Wilmerding, Wilmerding, Pitcairn, Penn Twp., Williams Twp., Braddock Twp., Patton Twp., Sterrett and North Versailles Twps., Allegheny Co.,	Allegheny river,	Pumping.
Penn Township Water Co.,	Penn Twp., Westmoreland Co.,	Operated by Westmoreland Water Co.,	
Peoples Water Co. of Canonsburg,	Cannonsburg Boro., Washington Co.,	Operated by North Strabane Water Co.,	
Peoples Water Co. of Pittston, Pa.,	Pittston City, Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Peoples Water Co. of Rush Twp., Centre Co. Pa.,	Rush Twp., Centre Co.,	Citizens Water Co.,	
Peoples Water Co. of Scranton,	Scranton City, Lackawanna Co.,	System of Spring Brook Water Supply Co.,	
Peoples Water Co. of Summerville,	Summerville Boro., Jefferson Co.,	Spring and drilled well,	Gravity and Pumping.
Perkasie Water Supply Co.,	Perkasie Boro., Bucks Co.,	Springs,	Pumping.
Perry Water Co.,	Perry Twp., Fayette Co.,	Stewarts run,	Pumping.
Philadelphia and Bristol Water Co.,	35th and 41st wards, City of Philadelphia,	Sandy run and Pennypack creek,	Pumping.
Pike County Water Supply Co.,	Blooming Grove Park Assoc., Pike Co.,	Lake Giles,	Pumping.
Pine Grove Water Co.,	Pine Grove Mills village, Centre Co.,	Springs,	Gravity.
Pine Hill Water Co.,	Landingville, Schuylkill Co.,	Silfis creek,	Pumping.
Pine Township Water Co.,	Heilwood village, Indiana Co.,	Yellow creek and drilled wells,	Pumping.
Pittston City Water Co.,	Pittston City, Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Pittston Township Water Co.,	Pittston Twp., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Plains Township Water Co.,	Plains Twp., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Plainsville Water Co.,	Plains Twp., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Plymouth Water Co.,	Plymouth Boro. and Twp., Luzerne Co.,	System of Spring Brook Water Supply Co.,	

TABLE NO. 3—Continued.

Name.	Supplies.	Source of Supply.	System of Supply.
Pocono Knob Water Co.,	Mount Pocono village, Monroe Co.,	Wiskey Spring,	Pumping.
Port Allegany Water Co.,	Port Allegany Boro., McKean Co.,	Skinner creek, Sherwood Branch, Paugh Brook.	Gravity.
Port Matilda Water Co.,	Port Matilda village, Centre Co.,	Springs,	Gravity.
Porter Water Co.,	Porter Twp., Lycoming Co.,	System of Jersey Shore Water Co.,	
Portland Water Co.,	Portland Boro., Northampton Co.,	Slateford creek,	Gravity.
Port Vue Water Co.,	Port Vue Boro., Allegheny Co.,	Drilled wells,	Pumping.
Possum Glory Water Co.,	Pine Twp., Indiana Co.,	Yellow creek and drilled wells,	Pumping.
Pottstown Gas and Water Co.,	Pottstown Boro., Montgomery Co.,	Schuylkill river,	Pumping.
Pottsville Water Co.,	Pottsville, St. Clair, Port Carbon, Palo Alto, and Mount Carbon, Schuylkill Co.,	Mud run, Mill creek, Wolf run and Indian run.	Gravity and Pumping.
Priceburg Water Co.,	Priceburg village, Lackawanna Co.,	Small stream,	Gravity.
Pulaski Water Co.,	Pulaski village, Lawrence Co.,	Spring,	Gravity.
Punxsutawney Water Co.,	Punxsutawney Boro., Jefferson Co.,	Lindsay Water Co.,	
Puritan Water Co.,	Baggaley, Westmoreland Co.,	Wolf Spring run,	Gravity.
Purity Water Co.,	McClure village, Snyder Co.,	Springs,	Gravity.
Quakertown Water Co.,	Quakertown Boro., Bucks Co.,	Tohicken creek,	Pumping.
Quarryville Water Co.,	Quarryville Boro., Lancaster Co.,	Springs,	Pumping.
Reading Suburban Water Co.,	Hyde Park and suburbs of Reading City, Berks Co.,	Reading City Water Works,	
Rebecca Water Co.,	Cresson Boro., Cambria Co.,	Springs,	Gravity.
Rebersburg Water Co.,	Rebersburg village, Center Co.,	Springs,	Gravity.
Red Lion Water Co.,	Red Lion Boro., York Co.,	Springs,	Pumping.
Rendham Water Co.,	Rendham village, Lackawanna Co.,	System of Spring Brook Water Supply Co.,	
Revere Water Co.,	Revere, Fayette Co.,	South West Water Co.,	
Reynoldsville Water Co.,	Reynoldsville and West Reynoldsville Boros., Prescottville and Winslow Twps., Jefferson Co.,	Pitch Pine run and drilled wells,	Pumping.
Reynshanhurst Water Co.,	Carbondale City, Lackawanna Co.,	System of Scranton Gas and Water Co.,	
Richland Water Co. of Richland, Pa.,	Richland Boro., Lebanon Co.,	Spring,	Gravity.
Rich Hill Water Co.,	Outcrop, Fayette Co.,	McCree Spring run,	Gravity.
Richland Township Water Co.,	Scalp Level Boro., Cambria Co.,	Operated by Windber Water and Power Co.	
Ridge Water Co.,	Ingram Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Risco Water Co.,	Wireton village, Allegheny, Co.,	Drilled well,	Pumping.
Riverton Consolidated Water Co.,	New Cumberland, Camp Hill, Lemoyne, White Hill, Earlington, Riverton, Wormleysburg, Cumberland Co.; Bella Vista, York Co.,	Eichinger run, Schaffer springs and Harrisburg Water Works,	Gravity and pumping.

Roaring Creek Water Co.,	Shamokin Boro. and Coal Twp., Northumberland Co.,	So. Br. Roaring creek, Trout and Eagle runs.	Gravity and Pumping.
Rockcliff Water Co.,	Forest City and part of Vandling Boros., Susquehanna Co.,	System of Scranton Gas and Water Co.,	
Rockledge Water Co.,	Rockledge Boro., Montgomery Co.,	System of Springfield Consolidated Water Co.	
Rock Water Co.,	Tremont Twp., Schuylkill Co.,	Good Spring creek,	Pumping.
Rockwood Water Co.,	Rockwood Boro., Somerset Co.,	Sand and Evans runs, and drilled well,	Gravity and Pumping.
Rocky Glen Water Co.,	Rocky Glen Park, Lackawanna Co.,	Trib. Spring Brook.	Gravity.
Rosslyn Water Co.,	Carnegie Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Roulet Water Co.,	Roulette village, Potter Co.,	Springs and Lanninger creek,	Gravity.
Rouzerville Water Co.,	Rouzerville and part of Pen Mar, Franklin Co.,	Springs.	Gravity and Pumping.
Rowenna Water Co.,	Rowenna village, Lancaster Co.,	Drilled well,	Pumping.
Saint Benedict Water Co.,	Saint Benedict village, Cambria Co.,	Small stream,	Pumping.
St. Clair Water Co.,	Lower St. Clair Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
St. Lawrence Water Co.,	St. Lawrence village, Berks Co.,	Spring,	Gravity.
St. Marys Water Co.,	St. Marys Boro., Elk Co.,	Silver creek, Laurel run, Wold Lick run, and drilled wells.	Pumping.
St. Petersburg Water Co.,	St. Petersburg Boro., Clarion Co.,	Spring and drilled wells,	Gravity and Pumping.
Salladasburg Water Co.,	Salladasburg Boro., Lycoming Co.,	Operated by Jersey Shore Water Co.,	
Sand Spring Water Co. of Meyersdale,	Meyersdale Boro., Somerset Co.,	Sand Spring, Stamm run and drilled wells,	Gravity and Pumping.
Sandy Lake Water Works Co.,	Sandy Lake Boro., Mercer Co.,	Springs and spring run,	Gravity.
Saxton Water Co.,	Saxton Boro., Stonertown and Coalmont villages, Bedford Co.,	Putts and Millers runs,	Gravity.
Sayre Water Co.,	Sayre and Athens Boros., Bradford Co.,	N. Br. Susquehanna river,	Pumping.
Scalp Level Water Co.,	Paint Boro., Somerset Co.,	Drilled well.	Pumping.
Schaefferstown Water Co.,	Schaefferstown village, Lebanon Co.,	Spring,	Gravity.
Schuylkill Haven Gas and Water Co.,	Schuylkill Haven and Cressona Boros., Schuylkill Co.,	Panther run,	Gravity and Pumping.
Scotia Water Supply Co.,	Jefferson Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Scranton Gas and Water Co.,	Lackawanna valley between Scranton and Forest City, Lackawanna and Susquehanna Co's.,	Lackawanna river and tributaries, Lehigh river.	Gravity and Pumping.
Selins Grove Water Co.,	Selinsgrove Boro., Snyder Co.,	Penns creek,	Pumping.
Shamokin Water Co.,	Shamokin Boro., Northumberland Co.,	Operated by Roaring Creek Water Co.,	
Sharon Water Works Co.,	Sharon Boro., So. Sharon Boro., Hickory Twp., Mercer Co.,	Shenango river,	Pumping.
Shawnee Water Co.,	Plymouth Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Shawnee Water Supply Co.,	Shawnee village, Monroe Co.,	Springs,	Gravity.
Shaefers Creek Water Co.,	Branch Twp., Schuylkill Co.,	Shaefer run and spring,	Gravity.
Sheffield Water Co.,	Sheffield village, Warren Co.,	Deer Lick run and drilled well,	Gravity.
Shenandoah Citizens Water and Gas Co.,	Shenandoah Boro., Schuylkill Co.,	Keahley, Fowler and Bairds runs, Cold Spring and Girard Water Co.	Gravity.
Shickshinny Water Co.,	Shickshinny Boro. and Mocanaqua village, Luzerne Co.,	Little Shickshinny creek,	Gravity.
Shiremanstown Water Co.,	Shiremanstown Boro., Cumberland Co.,	Operated by Riverton Consolidated Water Co.	

TABLE NO. 3—Continued.

Name.	Supplies.	Source of Supply.	System of Supply.
Shirland Water Co.,	Scott Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Shrewsbury Water Co.,	Shrewsbury Boro., York Co.,	Drilled wells,	Pumping.
Silver Creek Water Co.,	Palo Alto, Port Carbon, St. Clair, Cumbola, New Philadelphia and Blythe Twp., Schuylkill Co.,	Silver creek,	Gravity.
Sinking Springs Water Co.,	Sinking Springs, Spring Mount and West Lawn, Berks Co.,	Springs,	Gravity.
Siverly Water Co.,	Siverly Boro., Venango Co.,	Spring and dug well,	Gravity and pumping.
Smethport Water Co.,	Smethport Boro., McKean Co.,	Blacksmith run, Sheldon Brook and drilled wells.	Gravity and pumping.
Snowden Water Supply Co.,	Snowden Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Snow Shoe Water Co.,	Snow Shoe Boro., Center Co.,	Spring,	Gravity.
South Canonsburg Water Co.,	South Canonsburg Boro., Washington Co.,	Operated by North Strabane Water Co.,	
South Easton Water Co.,	South Easton, Northampton Co.,	Springs and drilled wells,	Gravity and pumping.
South Fork Water Co.,	South Fork Boro., Cambria Co.,	Sandy, Flenners and Croyle runs.	Gravity.
South Pittsburg Water Co.,	Allegheny County,	Monongahela river.	Pumping.
South Sharon Water Co.,	South Sharon village, Mercer Co.,	Operated by Sharon Water Works Co.,	
South Union Water Co.,	South Union Twp., Fayette Co.,	Operated by South West Water Co.,	
South Waverly Water Co.,	South Waverly Boro., Bradford Co.,	Waverly Water Co. of Waverly, N. Y.,	
South West Water Co.,	North Union Twp., Fayette Co.,	Youghiogheny river,	Pumping.
Spangler Water Co.,	Spangler Boro., Cambria Co.,		
Spring Brook Water Co.,	Avoca Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Spring Brook Water Supply Co.,	Wyoming and Lackawanna valleys between Nanticoke and Scranton, Luzerne and Lackawanna Co's.,	Susquehanna river and tributaries,	Gravity and pumping.
Springdale Water Co.,	Springdale Boro., Allegheny Co.,	Drilled well,	Pumping.
Springfield Consolidated Water Co.,	Suburbs of Philadelphia in Montgomery, Delaware and Chester Co's.,	Pickering and Crum creeks,	Pumping.
Springfield Water Co.,	Springfield Twp., Delaware Co.,	Operated by Springfield Consolidated Water Co.	
Spring Hill Water Co.,	Point Marion Boro., Fayette Co.,	Cheat river,	Pumping.
Springtown Water Co.,	Springtown village, Bucks Co.,	Springs,	Gravity.
Spring Water Co., of Kane,	Kane Boro., and Wetmore Twp., McKean Co.,	Herbert run, springs and drilled wells,	Pumping.
Standard Water Co.,	Unity Twp., Westmoreland Co.,	Trib. of Sewickley creek,	Pumping.
State College Water Co.,	State College Boro., Center Co.,	Shingleton Gap run,	Gravity.
Stewartstown Water Co.,	Stewartstown Boro., York Co.,	Drilled well,	Pumping.
Stone Hill Water Co.,	Rouseville Boro., Venango Co.,	Springs,	Gravity and pumping.
Stowe Water Co.,	Stowe Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	

Stoystown Water Co.,	Stoystown Boro., Somerset Co.,	Drilled wells,	Pumping.
Stroudsburg Water Co.,	Stroudsburg Boro., Monroe Co.,	Leased to Monroe Co. Water Supply Co.,	
Stroudsburg Water Supply Co.,	Stroudsburg Boro., Monroe Co.,	Springs and Brodheads creek,	Gravity and pumping.
Suburban Water Co. of Allegheny Co., Pa.,	Verona and Oakmont Boros., North Bessimer village, Plum and Penn Twps., Allegheny Co.,	Allegheny river,	Pumping.
Summit Hill Water Co.,	Summit Hill Boro., Carbon Co.,	Mauch Chunk creek and drilled well,	Pumping.
Summit Water Supply Co.,	P. R. R. in Cambria Co.,	South and North Forks of Little Conemaugh river, Bens creek and Bear Rock run.	Gravity.
Sunbury Water Co.,	Sunbury Boro., Northumberland Co.,	Little Shamokin and Plum creeks, Susquehanna river.	Pumping.
Superior Water Co.,	Ingram Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Susquehanna Falls Power Co.,	Lancaster and York Co's.,	System of McCall Ferry Power Co.,	
Susquehanna River Power Co.,	Lancaster and York Co's.,	System of McCall Ferry Power Co.,	
Susquehanna Storage, Lake and Power Co.,	Lancaster and York Co's.,	System of McCall Ferry Power Co.,	
Susquehanna Water Co.,	Susquehanna Boro., Susquehanna Co.,	Operated by Canawacta Water Supply Co.,	
Susquehanna Water Co.,	Susquehanna Twp., Cambria Co.,	Byrne run,	Gravity.
Swiftwater Water and Power Co.,	Swiftwater village, Monroe Co.,	Swiftwater creek,	Water power.
Taylorville Water Co.,	Taylorville village, Lackawanna Co.,	System of Spring Brook Water Supply Co.,	
Thompson Borough Water Co.,	Thompson Boro., Susquehanna Co.,	Springs,	Gravity and pumping.
Thornburg Water Co.,	Robinson Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Tiadaghton Water Co.,	Pine Creek Twp., Clinton Co.,	Operated by Jersey Shore Water Co.,	
Tidioute Water Co.,	Tidioute Boro., Warren Co.,	Springs and Tidioute creek,	Gravity.
Tioga Water Works Co.,	Tioga Boro., Tioga Co.,	Mountain Brook and dug well,	Gravity and pumping.
Tionesta Water Supply Co.,	Tionesta Boro., Forest Co.,	Spring runs,	Gravity.
Tipton Water Co.,	P. R. R. in Antis and Logan Twps., Blair Co.,	Tipton run,	Gravity.
Tobyhanna and Pocono Springs Water Co.,	Coolbaugh Twp., Monroe Co.,	Clear run,	Storage.
Tobyhanna Creek Water Supply Co.,	Coolbaugh Twp., Monroe Co.,	Tobyhanna creek,	Pumping.
Tobyhanna Water Storage and Supply Co.,	Tobyhanna Twp., Monroe Co.,	Tobyhanna creek,	Storage.
Toby's Creek Water Co.,	Luzerne Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Tomhicken Water Co.,	Black Creek Twp., Luzerne Co.,	East Stable, Sebaarh, Grim, Mine, Deep, Roberts and Miles Falls runs,, and drilled well,	Gravity and pumping.
Towanda Water Works Co.,	Towanda Boro., North Towanda and Monroetown villages, Bradford Co.,	Ellenberger spring and Satterbee run,	Gravity.
Trafford Water Co.,	Trafford City Boro., Westmoreland Co.,	Pennsylvania Water Co.,	
Tremont Water and Gas Co.,	Tremont Boro., Schuylkill Co.,	Poplar, Hollenbach and Tierney runs,	Gravity.
Treverton Water Supply Co.,	Treverton village, Northumberland Co.,	Springs and drilled well,	Pumping.
Trotter Water Co.,	Fayette and Westmoreland Co's.,	Monongahela and Youghiogheny rivers, Shutes run, Redstone creek, Coal Lick run and Yorks run.	Pumping.
Trout Run Water Co.,	Duncannon Boro., Perry Co.,	Spring runs,	Gravity.
Tunkhannock Water Co.,	Tunkhannock Boro., Wyoming Co.,	Springs and drilled well,	Gravity and pumping.
Tylersville Water Supply Co.,	Tylersville village, Clinton Co.,	Spring,	Gravity.

TABLE NO. 3—Continued.

Name.	Supplies.	Source of Supply.	System of Supply.
Tyrone Gas and Water Co.,	Tyrone Boro., Blair Co.,	Sinking Spring run,	Gravity.
Uniontown Water Co.,	Uniontown Boro. and Hopwood village, Fayette Co.,	Cool Spring run, Bennington Spring run Hutchinson run, Trotter and South West Water Co's.	Gravity.
Uniontown Water Co. of Dauphin Co.,	Pillow Boro., Dauphin Co.,	Springs,	Gravity.
Union Water Co.,	Beaver Falls Boro., Beaver Co.,	Operated by Beaver Valley Water Co,	
Union Water Co. of New Berlin,	New Berlin Boro., Union Co.,	Springs,	Gravity.
Unity Water Co.,	Penn Twp., Allegheny Co.,	Operated by Suburban Water Co. of Allegheny Co., Pa.	
University Water Co.,	Penna. State College and Ferguson Twp., Centre Co.,	Trib. of Spring creek,	Gravity.
Upper Dublin Water Co.,	Upper Dublin Twp., Montgomery Co.,	Operated by Ambler Spring Water Co.,	
Upper Gwynedd Water Co.,	Upper Gwynedd Twp., Montgomery Co.,	Operated by North Wales Water Co.,	
Upper Mauch Chunk Water Co.,	Upper Mauch Chunk, Carbon Co.,	Springs and Mauch Chunk creek,	Gravity.
Valley Water Co.,	Marcy Twp., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Valley Water Co. of Rochester,	Rochester Boro., Beaver Co.,	Operated by Beaver Valley Water Co.,	
Valley Water Storage Co.,	Dean Twp., Cambria Co.,		
Vandergrift Water Co.,	Vandergrift, Vandergrift Heights and East Vandergrift Boros., Westmoreland Co.,	Drilled wells,	Pumping.
Vandling Water Co.,	Fell Twp., Lackawanna Co.,	System of Scranton Gas and Water Co.,	
Veteran Water Co.,	Mt. Pleasant Twp., Westmoreland Co.,	Township Line run and Trib. of Boyer run,	Pumping.
Veteran Water Supply Co.,	Hempfield Twp., Westmoreland Co.,	Township Line run and Trib. of Boyer run,	Pumping.
Viaduct Water Supply Co.,	East Taylor Twp., Cambria Co.,	Summit Water Supply Co,	
Wallingford Water Co.,	Wallingford village, Delaware Co.,	Buy water from Media Water Works,	
Warren Water Co.,	Warren Boro. and village of Glade Run, Warren Co.,	Morrison run, drilled wells and Allegheny river.	Gravity and pumping.
Warriors Mark Water Co.,	Warriors Mark village, Huntingdon Co.,	Spring,	Gravity.
Washington Water Supply Co.,	Washington Twp., Lehigh Co.,		
Water Co. of Springettsbury Twp.,	Springettsbury Twp., York Co.,	Operated by York Water Co.,	
Waterford Water Co.,	Waterford Boro., Erie Co.,	Spring,	Gravity.
Watsonstown Water Co.,	Watsontown Boro., Northumberland Co.,	Operated by White Deer Mountain Water Co.,	
Waymart Water Co.,	Waymart Boro., Wayne Co.,	Patterson spring,	Gravity.
Waynesboro Water Co.,	Waynesboro Boro., Franklin Co.,	Springs and W. Br. Little Antietam creek,	Gravity.
Waynesburg Water Co.,	Waynesburg and East Waynesburg Boros., West Waynesburg village, Greene Co.,	So. Fork Ten Mile creek and drilled well,	Pumping.
Wayne Storage Water Power Co.,	Honesdale Boro., Wayne Co.,	Belmont, White Oak, Miller, Swamp, Long Upper and Lower Woods Ponds,	Storage.
Weatherly Water Co.,	Weatherly Boro., Carbon Co.,	Penrose creek,	Gravity.

Weissport Water Co.,	Weissport Boro., Carbon Co.,	Operated by Lehighton Water Supply Co.,	
Weldon Water Co.,	Abington Twp., Montgomery Co.,	Operated by Jenkintown Water Co.,	
Wellsboro Water Co.,	Wellsboro Boro., Tioga Co.,	Rock run, Mickle run, Charleston creek and springs.	Gravity.
Wernersville Water Co.,	Wernersville village, Berks Co.,	Springs,	Gravity.
West Berwick Water Supply Co.,	West Berwick Boro., Columbia Co.,	Operated by Berwick Water Co.,	
West Bolivar Water Co.,	Fairfield Twp., Westmoreland Co.,	Operated by Mace Springs Water Co. of Bolivar.	
West Conshohocken Water Co.,	West Conshohocken Boro., Montgomery Co.,	Springs and Cream Valley creek,	Pumping.
West End Water Co.,	Lancaster Twp., Lancaster Co.,	Lancaster City Water Works,	
West End Water Co.,	Mill Hall and Flemington Boros., Lockport and Allison Twps., Clinton Co.,	Queens run, Rams Hollow and Long Hollow runs.	Gravity.
West End Water Co. of West End Borough, Venango Co., Pa.,	West End Boro., Venango Co.,	Springs and drilled wells,	Gravity and pumping.
West Grove Water Co.,	West Grove Boro., Chester Co.,	Springs and drilled wells,	Gravity and pumping.
West Liberty Water Co.,	West Liberty Boro., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
Westmoreland Water Co. of Greensburg Borough, Westmoreland Co., Pa.,	Greensburg Boro., Westmoreland Co.,	Operated by Westmoreland Water Co. of Unity Twp.	
Westmoreland Water Co. of Hempfield Township, Westmoreland Co., Pa.,	Hempfield Twp., Westmoreland Co.,	Operated by Westmoreland Water Co. of Unity Twp.	
Westmoreland Water Co. of Ludwick Boro., Westmoreland Co., Pa.,	Ludwick Boro., Westmoreland Co.,	Operated by Westmoreland Water Co. of Unity Twp.	
Westmoreland Water Co. of Unity Twp., Westmoreland Co., Pa.,	Unity Twp., Westmoreland Co.,	Township Line run, Sewickley run, Nine Mile run, and Armel run.	Gravity and pumping.
West Newton Water Co. of West Newton,	West Newton Boro., Westmoreland Co.,	Drilled wells,	Pumping.
West Pittsburg Water Co.,	West Pittsburg village, Lawrence Co.,	Frisbee run,	Pumping.
West Reading Water Co.	West Reading and part of Wyomissing Boros., Berks Co.,	Schuylkill river,	Pumping.
West Salem Water Supply Co.,	Salem Twp., Luzerne Co.,	Operated by Berwick Water Co.,	
West Side Water Co.,	Dorranceton Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
West Side Water Co.,	West Pittston Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
West Side Water Co.,	Bridgewater Boro., Beaver Co.,	Operated by Beaver Valley Water Co.,	
Westwood Water Co.,	Union Twp., Allegheny Co.,	Operated by So. Pittsburg Water Co.,	
White Deer Creek Water Supply Co.,	Milton and Watsontown Boros., Montandon village, Northumberland Co.; and Lewisburg Boro., West Milton and White Deer villages, Union Co.,	White Deer Mountain Water Co.,	
White Deer Mountain Water Co.,	White Deer Twp., Union Co.,	White Deer creek,	Gravity.
White Haven Water Co.,	White Haven Boro., Luzerne Co.,	Trib. of Linesville creek, springs, drilled wells and Lehigh river.	Gravity and pumping.
Wildwood Water Co.,	Cresson Twp., Cambria Co.,	Clearfield creek,	Gravity.
Wilkes-Barre Water Co.,	Wilkes-Barre Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	
Williamsport Water Co.,	Williamsport City, and So. Williamsport Boro., Lycoming Co.,	Haegermans run, and dug wells along river,	Gravity and Pumping.

TABLE NO. 3—Continued.

Name.	Supplies.	Source of Supply.	System of Supply.
Williams Valley Water Co.,	Williamstown Boro., Dauphin Co.,	East Br. Rattling creek and Nine O'clock branch.	Gravity.
Winburn Water Co.,	Winburn, Lanse, Eylertown and Munson villages, Clearfield Co.,	Black Bear run,	Gravity.
Windber Water and Power Co.,	Windber, Scalp Level and Paint Boros., Seanor village, Somerset and Cambria Co's.,	Clear Shade creek, Paint and Little Paint creeks.	Gravity and Pumping.
Windsor Water Co.,	Hamburg Boro., Berks Co.,	Furnace creek,	Gravity.
Winton Water Co.,	Winton Boro., Lackawanna Co.,	System of Scranton Gas and Water Co.,	....
Womelsdorf Consolidated Water Co.,	Womelsdorf Boro. and Robesonia village, Berks Co.,	Gold Stream and springs,	Gravity.
Woodlawn Water Co.,	Woodlawn Boro., Beaver Co.,	Drilled wells along river,	Pumping.
Woodward Water Co.,	Woodward village, Centre Co.,	Springs,	Gravity.
Wrightsville Water Supply Co.,	Wrightsville Boro., York Co.,	Springs and Kreutz creek,	Gravity and Pumping.
Wright Township Water Co.,	Wright Twp., Luzerne Co.,	Espy run,	Gravity.
Wyalusing Water Co.,	Wyalusing Boro., Bradford Co.,	Stratford Brook and Wyalusing creek,	Gravity.
Wyncote Water Co.,	Cheltenham Twp., Montgomery Co.,	Operated by Jenkintown Water Co.,	....
Wyoming Water Co.,	Wyoming Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	....
Wyomissing Spring Water Co.,	Wyomissing Boro., Berks Co.,	Springs,	Pumping.
Yardley Water and Power Co.,	Yardley Boro., Bucks Co.,	Drilled well,	Pumping.
Yatesville Boro. Water Co.,	Yatesville Boro., Luzerne Co.,	System of Spring Brook Water Supply Co.,	....
York County Consolidated Water Co.,	Dallastown, Yoe and Windsor Boros., York Co.,	Springs,	Pumping.
York Haven Water and Power Co.,	York Haven Boro., York Co.,	Susquehanna river,	Water Power.
York Water Co.,	York City, Boros of North and West York, Townships of Manchester and West Manchester, Spring Garden and Springettsbury, York Co.,	So. Br. Codorus creek,	Pumping.

TABLE NO. 4.

Municipal Water Works.

City or Borough.	Population.	Source of Supply.	System of supply.
Allentown City, Lehigh Co.,	51,913	Springs,	Pumping.
Alliquippa Boro., Beaver Co.,	1,743	Drilled wells,	Pumping.
Altoona City, Blair Co.,	52,127	Burgoon, Scotch and McGarvey runs,	Gravity.
Ashland Boro., Schuylkill Co.,	6,855	Springs and Little Mahanoy creek,	Gravity.
Aspinwall Boro., Allegheny Co.,	3,000	Drilled wells,	Pumping.
Austin Boro., Potter Co.,	2,941	Springs and drilled well,	Pumping.
Avonmore Boro., Westmoreland Co.,	1,262	Drilled wells,	Pumping.
Baden Boro., Beaver Co.,	601	Drilled wells along river bank,	Pumping.
Bath Boro., Northampton Co.,	1,057	Springs,	Gravity.
Beaver Boro., Beaver Co.,	3,456	Drilled wells along river bank,	Pumping.
Bedford Boro., Bedford Co.,	2,235	Todd Spring and Milburn Spring streams and Gravel Hill spring.	Gravity.
Bellefonte Boro., Centre Co.,	4,145	Bellefonte spring,	Pumping.
Bellwood Boro., Blair Co.,	2,277	Bells Gap run,	Gravity.
Bendersville Boro., Adams Co.,	355	Spring,	Gravity.
Bethlehem Boro., Northampton Co.,	12,837	Spring and drilled wells,	Pumping.
Blairsville Boro., Indiana Co.,	3,572	Conemaugh river,	Pumping.
Blain Boro., Perry Co.,	326	Spring,	Gravity.
Boyertown Boro., Berks Co.,	2,433	Springs and spring run,	Gravity.
Braddock Boro., Allegheny Co.,	19,357	Monongahela river and drilled wells along river bank,	Pumping.
Bradford City, McKean Co.,	14,544	Marilla creek, Gilbert run and drilled wells along Marilla creek,	Gravity & pumping.
Carrolltown Boro., Cambria Co.,	1,348	Springs,	Gravity.
Cambridge Springs Boro., Crawford Co.,	1,514	French creek,	Pumping.
Centre Hall Boro., Centre Co.,	509	Springs,	Gravity.
Chambersburg Borough, Franklin Co.,	11,800	Conococheague creek,	Pumping.
Claysville Boro., Washington Co.,	1,045	Spring,	Pumping.
Coalport Boro., Clearfield Co.,	876	Drilled wells,	Pumping.
Coatesville Boro., Chester Co.,	11,084	Sucker run and tributary,	Gravity & pumping.
Cochranton Boro., Crawford Co.,	695	Springs,	Gravity.
Conneautville Boro., Crawford Co.,	867	Springs and drilled wells,	Gravity & pumping.

TABLE NO. 4—Continued.

City or Borough.	Population.	Source of Supply.	System of supply.
Coopersburg Boro., Lehigh Co.,	683	Spring,	Gravity.
Coraopolis Boro., Allegheny Co.,	5,252	Ohio river,	Pumping.
Danville Boro., Montour Co.,	7,517	North Branch Susquehanna river,	Pumping.
Dawson Boro., Fayette Co.,	848	Drilled wells,	Pumping.
Delta Boro., York Co.,	881	Drilled well,	Pumping.
Denver Boro., Lancaster Co.,	932	Springs,	Gravity.
Downingtown Boro., Chester Co.,	3,326	Pine and Cachelman streams,	Gravity.
Doylestown Boro., Bucks Co.,	3,304	Springs and drilled wells,	Pumping.
DuBois Boro., Clearfield Co.,	12,623	Andersons creek,	Gravity.
Duncansville Boro., Blair Co.,	1,263	Gillans run,	Gravity.
Duquesne Boro., Allegheny Co.,	15,727	Drilled wells along river bank,	Pumping.
East Bangor Boro., Northampton Co.,	1,186	Springs,	Gravity.
East Greenville Boro., Montgomery Co.,	1,235	Perkiomen creek,	Pumping.
East Stroudsburg Boro., Monroe Co.,	3,500	Fabel Spring and Sambo creek,	Gravity & pumping.
Ebensburg Boro., Cambria Co.,	1,978	Blacklick creek and drilled well,	Pumping.
Edenburg Boro., Clarion Co.,	616	Drilled well,	Pumping.
Elkland Boro., Tioga Co.,	1,175	Springs,	Gravity.
Emaus Boro., Lehigh Co.,	3,501	Springs and drilled well,	Gravity & pumping.
Ephrata Boro., Lancaster Co.,	3,192	Springs,	Gravity.
Erie City, Erie Co.,	66,525	Lake Erie,	Pumping.
Etna Boro., Allegheny Co.,	5,830	Allegheny river,	Pumping.
Evans City Boro., Butler Co.,	1,339	Springs and drilled wells,	Pumping.
Falls Creek Boro., Jefferson Co.,	1,204	Falls creek,	Pumping.
Fleetwood Boro., Berks Co.,	1,394	Spring,	Gravity.
Ford City Boro., Armstrong Co.,	4,000	Drilled wells along and in Allegheny river,	Pumping.
Franklin City, Venango Co.,	9,767	Springs, French creek and drilled wells along French creek,	Gravity & pumping.
Gaysport Boro., Blair Co.,	917	Dry Gap run,	Gravity.
Girard Boro., Erie Co.,	1,165	Spring,	Pumping.
Glen Rock Boro., York Co.,	1,263	Springs and trib. of Codorus creek,	Gravity.
Grove City Boro., Mercer Co.,	3,674	Drilled wells,	Pumping.
Harrisburg City, Dauphin Co.,	64,186	Susquehanna river,	Pumping.
Hastings Boro., Cambria Co.,	2,125	Springs,	Pumping.

Hellertown Boro., Northampton Co.,	915	Springs,	Gravity.
Hollidaysburg Boro., Blair Co.,	3,734	Blairs Gap and Roaring runs,	Gravity.
Homestead Boro., Allegheny Co.,	18,713	Monongahela river and drilled wells along river bank,	Pumping.
Honeybrook Boro., Chester Co.,	581	Springs,	Gravity.
Howard Boro., Centre Co.,	667	Lick run,	Gravity.
Juniata Boro., Blair Co.,	5,285	Homer Gap stream,	Gravity.
Kennett Square Boro., Chester Co.,	2,049	Trib. of Red Clay creek,	Pumping.
Knoxville Boro., Tioga Co.,	840	Springs and drilled wells,	Gravity & pumping.
Laceyville Boro., Wyoming Co.,	479	Little Tuscarora creek, springs, drilled well and N. Branch Susquehanna river.	Gravity & pumping.
Lancaster City, Lancaster Co.,	47,227	Conestoga creek,	Pumping.
Lebanon City, Lebanon Co.,	19,240	Poplar run, Hammer creek and tributaries,	Gravity & pumping.
Ligonier Boro., Westmoreland Co.,	1,575	Furnace run,	Gravity.
Lititz Boro., Lancaster Co.,	2,082	Drilled well,	Pumping.
Littlestown Boro., Adams Co.,	1,347	Dug well,	Pumping.
Lock Haven City, Clinton Co.,	7,772	McElhattan and Harvey's runs,	Gravity.
Macungie Boro., Lehigh Co.,	772	Mountain stream,	Gravity.
Malvern Boro., Chester Co.,	1,125	Dug well,	Pumping.
Mars Boro., Butler Co.,	1,215	Drilled well along Breakneck creek,	Pumping.
McKeesport City, Allegheny Co.,	42,694	Youghiogheny river,	Pumping.
Meadville City, Crawford Co.,	12,780	Drilled wells along creek and French creek,	Pumping.
Media Boro., Delaware Co.,	3,562	Ridley creek,	Pumping.
Mifflinburg Boro., Union Co.,	1,559	North Branch of Buffalo creek,	Gravity.
Milesburg Boro., Centre Co.,	531	Mountain run,	Gravity.
Millerstown Boro., Perry Co.,	549	Springs,	Gravity & pumping.
Millvale Boro.,, Allegheny Co.,	7,861	Allegheny river,	Pumping.
Monaca Boro., Beaver Co.,	3,376	Ohio river,	Pumping.
Montoursville Boro., Lycoming Co.,	1,904	Springs and dug well,	Gravity & pumping.
Morrisville Boro., Bucks Co.,	2,002	Delaware river,	Pumping.
Mt. Joy Boro., Lancaster Co.,	2,166	Little Chickies creek,	Pumping.
New Freedom Boro., York Co.,	726	Drilled wells,	Pumping.
New Oxford Boro., Adams Co.,	838	Little Conewago creek,	Pumping.
Northeast Boro., Erie Co.,	2,672	Springs and Sixteen Mile creek,	Gravity & pumping.
Oil City, Venango Co.,	15,657	Springs and drilled wells along river,	Gravity & pumping.
Orwigsburg Boro., Schuylkill Co.,	1,801	Silfis run,	Gravity.
Oxford Boro., Chester Co.,	2,390	Drilled wells,	Pumping.
Philadelphia City, Philadelphia Co.,	1,549,008	Delaware and Schuylkill rivers,	Pumping.
Phoenixville Boro., Chester Co.,	10,743	Schuylkill river,	Pumping.
Pine Grove Boro., Schuylkill Co.,	1,352	Adams creek,	Gravity.
Pittsburgh City, Allegheny Co.,	533,905	Allegheny river,	Pumping.
Pleasantville Boro., Venango Co.,	702	Drilled wells,	Pumping.
Rainsburg Boro., Bedford Co.,	203	Springs and Spring run,	Gravity.
Reading City, Berks Co.,	96,071	Antietam, Bernhardt, Engleman and Maiden creeks and springs,	Gravity & pumping.
Renovo Boro., Clinton Co.,	5,506	Drurys run,	Gravity.
Ridgway Boro., Elk Co.,	5,408	Mill creek,	Pumping.
Rimersburg Boro., Clarion Co.,	855	Drilled well,	Pumping.
Roaring Spring Boro., Blair Co.,	1,903	Tributaries of Plum creek,	Gravity.
Rural Valley Boro., Armstrong Co.,	763	Drilled well,	Pumping.
Saltsburg Boro., Indiana Co.,	1,044	Conemaugh river,	Pumping.

TABLE NO. 4—Continued.

City or Borough.	Population.	Source of Supply.	System of supply.
Sellersville Boro., Bucks Co.,	1,572	Kinseys creek,	Gravity.
Sewickley Boro., Allegheny Co.,	4,479	Ohio river and springs,	Pumping.
Sharpsburg Boro., Allegheny Co.,	8,153	Drilled wells along Allegheny river,	Pumping.
Sharpsville Boro., Mercer Co.,	3,634	Shenango river,	Pumping.
Shenandoah Boro., Schuylkill Co.,	25,774	Davis and Fowler runs,	Gravity & pumping.
Shippensburg Boro., Cumberland Co.,	3,457	Miles, Bun and Tumbling runs,	Gravity.
Slatington Boro., Lehigh Co.,	4,454	Springs,	Gravity.
Slippery Rock Boro., Butler Co.,	870	Drilled wells,	Pumping.
Somerset Boro., Somerset Co.,	2,612	Drilled wells,	Pumping.
Souderton Boro., Montgomery Co.,	1,875	Springs and drilled well,	Pumping.
South Renovo Boro., Clinton Co.,	1,200	Springs and Halls run,	Gravity.
Steelton Boro., Dauphin Co.,	14,246	Susquehanna river,	Pumping.
Stoneboro Boro., Mercer Co.,	1,074	Springs,	Gravity & pumping.
Strassburg Boro., Lancaster Co.,	885	Springs,	Gravity.
Tamaqua Boro., Schuylkill Co.,	9,462	Owl creek and Rapid run,	Gravity & pumping.
Titusville City, Crawford Co.,	8,533	Drilled wells along Oil creek,	Pumping.
Topton Boro., Berks Co.,	809	Springs,	Gravity.
Troy Boro., Bradford Co.,	1,288	Springs and drilled well,	Gravity & pumping.
Union City Boro., Erie Co.,	4,000	Lime Kiln, Thomsons and Bentley runs and So. Branch French creek.	Gravity & pumping.
West Chester Boro., Chester Co.,	11,767	Chester creek,	Pumping.
Westfield Boro., Tioga Co.,	1,207	Springs,	Gravity.
West Lebanon Tps., Lebanon Co.,	------	Drilled wells,	Pumping.
West Middlesex Boro., Mercer Co.,	1,157	Drilled wells,	Pumping.
Williamsburg Boro., Blair Co.,	1,523	Snare run and Schmuckers run,	Gravity.
Zelienople Boro., Butler Co.,	1,388	Sehold run and Connoquenessing creek,	Pumping.
Total, 133			

APPENDIX B.

THE LAW OF PENNSYLVANIA RELATING TO THE FORMATION, RIGHTS, POWERS AND DUTIES OF

WATER AND WATER POWER COMPANIES

COMPRISING THE STATUTES IN FORCE, DECISIONS OF THE COURTS AND OPINIONS OF THE HEADS OF DEPARTMENTS.

By
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1909

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I.

HISTORY, CLASSES AND NATURE.

1. HISTORY.

Water companies were originally formed in Pennsylvania wholly under special acts of the Legislature, which, together with their supplements, constituted the charters of such corporations and contained all of the corporate rights and powers. Subsequently, a general act was passed on March 11th, 1857, (P. L. 77), providing, together with its supplements, for the regulation and general powers of water companies incorporated by special acts and made subject to its provisions. Subsequently the act of March 26th, 1867, (P. L. 44), authorized the incorporation of water companies by the courts of Common Pleas, and several companies so incorporated are still in existence. The act of February 27th, 1872, (P. L. 20), also authorized the formation of water companies by the courts of Common Pleas of the several counties. While these acts were apparently not repealed by the act of April 29th, 1874, there would be no advantage in forming water companies after that date under said acts. The constitution of 1873 abolished the formation of water companies under special acts, and the act of April 29th, 1874, provided for the formation of water companies under a general act, and also provided for the acceptance of its provisions by any water company incorporated prior to its passage and subject to the provisions of any other act. Where any such company, therefore, has accepted the provisions of the act of April 29th, 1874, it is, as regards its class and powers, to all intents and purposes, a corporation formed under the provisions of the said act of April 29th, 1874.

The act of April 29th, 1874, provided in clause 9 of section 2 for the formation of companies "for the supply of water to the public." This clause was amended by the act of May 16th, 1889, (P. L. 226), so as to read "for the supply of water to the public, or the supply, storage or transportation of water and water power for commercial and manufacturing purposes."

The original act of April 29th, 1874, also provided in clause 18 of section 2 for the formation of companies "for the storage and transportation of water, with the right to take rivulets and land and erect reservoirs for holding water." This statement of purpose was amended by the act of May 21st, 1889, (P. L. 259), so as to read "for the storage, transportation and furnishing of water, with the right to take rivulets and land and erect reservoirs for holding water for manufacturing and other purposes, and for the creation, establishing, furnishing, transmission and using of water power therefrom."

2. CLASSES.

Under the act of April 29th, 1874, therefore, as construed by Attorney General Carson, in re Portland Water and Power Company, Op. Atty, Gen., 1903-04, p. 34, the three following classes of water companies are authorized:

(1) For the supply of water to the public: act of April 29th, 1874, section 2, clause 9.

(2) For the supply, storage and transportation of water and water power for commercial and manufacturing purposes: act of April 29th, 1874, section 2, clause 9, as amended by act of May 16th, 1889, (P. L. 226).

(3) For the storage, transportation and furnishing of water for manufacturing and other purposes, and for the creation, establishing, furnishing, transmission and using of water power therefrom: act of April 29th, 1874, section 2, clause 18, as amended by act of May 21st, 1889, (P. L. 259).

A kind of water company may also exist by virtue of the provisions of the act of May 17th, 1901, (P. L. 261), that "any person, corporate or otherwise, vested with the franchise of constructing, maintaining and using, for purposes of transportation, canals, or other artificial highways, may, at any time, convert a portion of the whole of the water supply, theretofore used for such highways, to the uses of domestic, manufacturing and commercial purposes, and may to this end, from time to time, lease, sell or convey the whole or any portion of the same."

3. NATURE.

Companies for the supply of water to the public are formed for a public purpose and are, therefore, clearly public corporations, with the right of eminent domain and all other rights that attach to public corporations, including an exemption from attachment by mechanics liens; Foster v. Fowler, 60 Pa. 27; Guest v. Merion Water Company, 142 Pa. 610.

So also companies for the supply, storage and transportation of water and water power for commercial and manufacturing purposes are public corporations, incorporated for a public use and invested with the right of eminent domain; Jacobs v. Clearview Water Company, 220 Pa. 388; and are exempt from local taxation; Conoy Township v. York Haven Power Company, 222 Pa. 319.

Companies formed under clause 18 of section 2 of the act of April 29th, 1874, are by that clause given the right of eminent domain, and it would seem, therefore, that it was the intention of the Legislature to class them as public corporations. It has been held, however, in Peifly v. Mountain Water Supply Company, 214 Pa. 340; and in Jacobs v. Clearview Water Supply Company, 220 Pa. 388; that corporations of this class are presumably corporations for a private use and cannot constitutionally be vested with the right of eminent domain. The burden would, therefore, be upon a corporation of this class to show that its purpose was in fact a public one, and in event of its failure to show this it would be classed as a private corporation.

II.

APPLICATION FOR CHARTER.

4. INCORPORATORS.

"The charter of an intended corporation must be signed by five (two) or more persons, three (one) of whom, at least, must be citizens of this Commonwealth:" act April 29th, 1874, section 3.

"Corporations for profit, embraced within corporations of the second class, defined in section two (2), and the various supplements to said section two (2), of the act to which this is a supplement, may be formed, under the provision of said act, by voluntary association of three or more persons, and the charter of an intended corporation must be subscribed by two or more persons, one of whom, at least, must be a citizen of this Commonwealth. All corporations formed under the provisions of the several supplements of section two (2) of the act of April twenty-ninth, one thousand eight hundred and seventy-four, by the voluntary association of three or more persons, and the charter of said corporations having been subscribed by not less than two persons, one of whom was a citizen of this Commonwealth and in which charters have been granted by the Governor of the Commonwealth of Pennsylvania, be and the same are hereby ratified and confirmed, to the same extent as though the said several supplements to the act of April twenty-ninth, one thousand eight hundred and seventy-four, had been a part and parcel of the original section two (2) of the act of April twenty-ninth, one thousand eight hundred and seventy-four:" Act May 29th, 1901, (P. L. 326), as amended by Act April 23rd, 1903, (P. L. 273).

5. CONTENTS OF APPLICATION.

The application for a charter for a water or water power company shall set forth:

"I. The name of the corporation.
II. The purpose for which it is formed.
III. The place or places where its business is to be transacted.
IV. The term for which it is to exist.
V. The names and residence of the subscribers and the number of shares subscribed by each.
VI. The number of its directors and the names and residences of those who are chosen directors for the first year.
VII. The amount of its capital stock, if any, and the number and par value of shares into which it is divided." Act of April 29th, 1874, section 3.

"No application for a charter for a corporation for the supply of water for the public, or for the supply, storage and transporation of water or water power for commercial and manufacturing purposes, or for any other water or water power company, shall be approved by the Governor, nor shall letters patent be issued thereon .... unless said application shall contain, in addition to the statements now required to be made, the name of the river, stream, or other body of water, from which it is proposed to take or use water or water power, and, as near as may be, the points on said river, stream, or other body of water, between which said water or water power is proposed to be taken or used:" Act June 7th, 1907, section 1, (P. L. 455).

The application "shall also state that ten per centum of the capital stock thereof has been paid in cash to the treasurer of the intended corporation, and the name and residence of such treasurer shall be therein given:" Act April 29th, 1874, section 3.

The purpose stated in the application must be a single one, and a charter will not be approved "for the supply of water to the public, and for the supply, storage and transportation of water and water power for commercial and manufacturing purposes:" in re Sowego Water and Power Company, 16 Pa. C. C. 179.

The statement of the purpose of the corporation should be made in the language of the act, and should not include powers it is intended the corporation shall have: in re Philadelphia Co., 33 Pa. C. C. 428.

In an application for a charter for a water power company intending to generate and supply electric power, the words "with the right to generate electric current and supply the same at any place or places" should not be added: in re Providence Hydro-Electric Company, 27 Pa. C. C. 467.

The application for a charter for the supply of water to the public, or for the supply, storage and transportation of water and water power, must state the town, township, borough, city or district in which it proposes to supply water or water power: in re Perkiomen Water Storage, &c., Company, 13 Pa. C. C. 124.

The district named in the application should not cover more than a single municipality, and words to include territory adjacent thereto should not be added: Bly v. White Deer Mountain Water Company, 197 Pa. 80.

The place where the business of the corporation is to be transacted is the place where its principal office is to be, not where the water or water power is to be supplied: in re Mann Mining Company, 2 Chest. 90.

6. EXECUTION OF APPLICATION.

The application "shall be acknowledged by at least three (two) of the subscribers thereto, before the Recorder of Deeds of the county in which the chief operations are to be carried on, or in which the principal office is situated, and they shall also make and subscribe an oath or affirmation before him to be endorsed on the said certificate, that the statements contained therein are true:" Act April 29th. 1874, section 3.

"From and after the passage hereof, all certificates of association or articles of incorporation may be acknowledged and sworn to before a notary public of the Commonwealth of Pennsylvania, in the same manner, and with like force and effect, as though acknowledged and sworn to before the recorder of deeds of the proper county:" Act April 15th, 1891, (P. L. 18).

Since the passage of the act of May 29th, 1901, (P. L. 326), the application may be acknowledged and sworn to by two persons: Peoples Gas Light & Fuel Co., 6 Dauph. 60.

7. NOTICE.

"Notice of the intention to apply for any such charter shall be inserted in two newspapers of general circulation, printed in the proper county, for three weeks, setting forth briefly the character and object of the corporation to be formed, and the intention to make application therefor:" Act April 29th, 1874, section 3.

"Hereafter all notices required to be published by authority of law in cities of first and second class in this Commonwealth shall, in addition to the publication thereof in any newspaper of general circulation printed in the English language as provided by law, be published in a daily newspaper published in the German language, and prices shall not exceed usual advertising rates of such newspaper shall be published in the county in which the said notices are required to be advertised: Provided, That publication in such German newspaper shall be made subject to the same stipulations and regulations as are imposed on the newspapers published in the English language for like service:" Act July 2nd, 1895, (P. L. 426).

In order to avoid existing confusion, arising from the fact that publication of notices in connection with the formation, amendment, increase or reduction of capital stock, conduct of business, merger, transfer of franchises, or dissolution of corporations, joint-stock companies, limited partnerships, and partnership associations are not required to be published in any designated paper in any county, and to serve the convenience of members of the bar and others interested in such notices, hereafter in all cases, where publication is or may be required by law in connection with the formation, amendment, increase or reduction of capital stock, conduct of business, merger, transfer of franchises, or dissolution of corporations, joint-stock companies, limited partnerships, or partnership association, such notice as is or may be required, as aforesaid, shall be published in the legal journal, if any, of the proper county, in which court notices usually appear, which journal for such purposes shall be deemed a newspaper of general circulation; Provided, That the rates charged for such publication shall not be in excess of the usual and current rates charged by such newspapers;" Act May 3, 1909, (P. L. 386).

Twenty-one days must elapse between the first insertion of the notice and the date upon which the application is made: Shamokin Coal Co., Op. Atty. Gen., 1895-96, p. 304.

Trade journals are not newspapers of general circulation within the meaning of the act: New Gas Light Co., 1 Dauph. 22.

Except where publication in a German newspaper is required, such a newspaper is not within the meaning of the act: Chartiers Ferry Co., Op. Atty. Gen. 2 Chest. 91.

If publication is made in the Legal Intelligencer it must also be made in two newspapers of general circulation: Enterprise Mutual Benefit Association, 10 Phila. 380, 32 Leg. Int. 82; Application for Charter, 33 Leg. Int. 158.

8. GRANTING OF CHARTERS.

"The said certificate, accompanied with proof of publication of notice as hereinbefore provided, shall then be produced to the governor of this Commonwealth, who shall examine the same, and if he find it to be in proper form and within the purposes named in the second class, specified in the foregoing section, he shall approve thereof and endorse his approval thereon, and direct letters patent to issue in the usual form, incorporating the subscribers and their associates and successors into a body politic and corporate, in deed and in law, by the name chosen, and the said certificate shall be recorded in the office of the Secretary of the Commonwealth, in a book to be by him kept for that purpose, and he shall forthwith furnish to the auditor general an abstract therefrom, showing the name, location, amount of capital stock, and name and address of the treasurer of such corporation:" Act April 29th, 1874, section 3.

"Hereafter no letters patent shall be issued to any company desiring to be incorporated for the purpose of supplying water to the public, in any community in the Commonwealth, until said application is first submitted to and has received the approval of a majority of the said Water Supply Commission:" Act May 4th, 1905, (P. L. 385).

"From and after the passage of this act, no application for a charter for a corporation for the supply of water for the public, or for the supply, storage and transportation of water and water power for commercial and manufacturing purposes, or for any other water or water power company, shall be approved by the Governor, nor shall letters patent be issued thereon, unless said application is first submitted to, and has received the approval of a majority of the members of The Water Supply Commission of Pennsylvania:" Act June 7th, 1907, (P. L. 455).

9. RECORDING APPLICATION.

"The said original certificate, with all of its endorsements, shall then be recorded in the office for the recording of deeds, in and for the county where the chief operations are to be carried on, and from thenceforth the subscribers thereto, and their associates and successors, shall be a corporation, for the purposes and upon the terms named in the said charter:" Act April 29th, 1874, section 3.

The corporate existence of a water company dates from the recording of its charter in the county where its "chief operations are to be carried on," and not from the issuance of letters patent. Borough of Braddock v. Penn Water Co., et al, 189 Pa. 379; Armstrong Water Co., v. Reyburn Water Co., 24 Pa. C. C. 13.

III.

GENERAL POWERS.

10. GENERAL POWERS OF COMPANIES FOR THE SUPPLY OF WATER TO THE PUBLIC, AND COMPANIES FOR THE SUPPLY, STORAGE AND TRANSPORTATION OF WATER AND WATER POWER FOR COMMERCIAL AND MANUFACTURING PURPOSES.

"Companies incorporated under the provisions of this statute for the supply of water to the public .... shall, unless otherwise provided by this act, from the date of the letters patent creating the same, have the powers and be governed, managed and controlled as follows: Act April 29th, 1874, section 34.

"Where such companies shall be incorporated for the supply of water to the public, or for storing and transporation or supply of water and water power for commercial and manufacturing purposes, they shall have power to provide, erect and maintain all works and machinery necessary or proper for raising and introducing into the town, borough, city or district where they may be located a sufficient supply of pure water, or water and water power as aforesaid, and for that purpose may provide, erect and maintain all proper buildings, cisterns, reservoirs, pipes and conduits, for the reception and conveyance of water, or water power, and it shall have power to appropriate so much of the water from the rivers, creeks, canal water-rights and easements, within or without the limits of the city, borough or place in which said company may by its charter be located, as may be necessary for its purposes, and all damage done thereby shall be ascertained, recovered and paid as provided for in the forty-first section of the act to which this is a supplement; and it is further authorized and empowered by itself, its agents, engineers, and workmen, and with its and their tools, carts, wagons, beasts of draught or burden, to enter upon such lands and enclosures, streets, lanes, alleys, roads and highways and bridges, as may be necessary to occupy or to obtain materials for the construction of said works, and to occupy, ditch, and lay pipes through the same, and the same from time to time to repair, subject to such regulations in regard to streets, roads, lanes and other highways and impairing the free use thereof as little as possible, and subject to such regulations as the councils of said borough, town, city or district may adopt in regard to grades or for the protection and convenience of public travel over the same, and if any injury be done to private property the said company shall make compensation therefor in the manner provided for in the forty-first section of this act (See Par. 46.): Provided, That this act shall not apply to private springs or private water supplies:" Act April 29th, 1874, section 34, clause 2, as amended by Act May 16th, 1889, (P. L. 226).

The right to appropriate water from rivers, creeks, canal water-rights and easements contained in the above quoted section are not conferred upon water companies created since the passage of the act of April 13th, 1905, (P. L. 152). (See Par. 38).

11. ADDITIONAL POWERS GIVEN TO COMPANIES FOR THE SUPPLY, STORAGE AND TRANSPORATION OF WATER AND WATER POWER FOR COMMERCIAL AND MANUFACTURING PURPOSES.

a. Power to determine character and design of works.

"Corporations heretofore or hereafter incorporated under the Act of Assembly, entitled 'An act to provide for the incorporation and regulation of certain corporations,' approved April twenty-ninth, one thousand eight hundred and seventy-four, and the supplements thereto, for the supply, storage or transportation of water and water power for commercial and manufacturing purposes, be and the same are hereby authorized and empowered to determine the character, design and construction of the works and the use to be made of the water and water power of such companies, in order that the same may be supplied to the public to the best advantage, and by themselves, their agents, engineers and workmen, cause to be located, constructed, maintained, repaired and operated under the law and supplements to which this is a further supplement, the said works and all machinery, dams, buildings, cisterns, races, canals, waterways, reservoirs, pipes, conduits, lines, plants, apparatus, fixtures and appliances deemed necessary, requisite and proper for said purposes, and it shall and may be lawful for such corporations from time to time to contract with any individual or corporation of this or any other state for the construction, operation, use and maintenance of their works or any part thereof as aforesaid, and to mortgage their said property, real, personal and mixed, and franchises to any person or corporation of this State, or elsewhere, either directly or as trustee, to secure the payment of such indebtedness as may be incurred or created for the purpose of constructing and erecting the said works, or as a guaranty for the faithful performance of contracts and covenants on the part of such water and water power company to be performed, including the guaranty of the payment of the bonds and interest thereon of any other corporation, party to such contract, and the stock in any company incorporated for the purposes named in this act may be owned and held by corporations of this or other States of the United States:" Act July 2nd, 1895, (P. L. 432).

b. Power to generate and distribute electric power and current.

"Corporations organized, or hereafter to be organized, under the laws of this State for the purpose of supplying water power to the public, and other corporations owning or controlling water power, may develop electric power for commercial purposes by means of water power, and shall have authority to supply current and power to the public, individuals, firms and corporations at such prices as may be agreed upon, and shall have authority to make, erect and maintain the necessary buildings, machinery and apparatus for developing power and current, and to distribute the same to any place or places with the right to enter upon any public road, street, lane, alley or highway for such purposes, and to alter, inspect and repair its system of distribution: Provided, That no such company shall enter upon any street or alley in any city, borough or township of this Commonwealth, until after the consent to such entry of the councils of the city or borough or supervisors of the township in which such street or alley may be located shall have been obtained:" Act July 2nd, 1895, (P. L. 425).

12. GENERAL POWERS OF COMPANIES FORMED UNDER CLAUSE 18, SECTION 2, ACT OF APRIL 29th, 1874.

Clause 18 of section 2 of the Act of April 29th, 1874, as finally amended by the act of May 21st, 1889, (P. L. 259), and the act of May 9th, 1901, (P. L. 624), providing for the formation of water companies of this class, also furnishes the statutory provision for their general powers. It provides that companies may be formed "for the storage, transportation and furnishing of water, with the right to take rivulets and land and erect reservoirs for holding water for manufacturing and other purposes, and for the creation, establishing, furnishing, transmission and using water power therefrom."

Clause 4 of section 34 of the act of April 29th, 1874, also provides: "Companies organized for any of the purposes set forth in the eighteenth clause of the second section of this act, and not having for their object the supplying of any village, borough or city with water, shall have all the rights, privileges and powers conferred by the said eighteenth clause."

It would seem that companies of this class had the power to develop electric power for commercial purposes by means of their water power conferred by the act of July 2nd, 1895, (P. L. 425), upon "corporations organized .... for the purpose of supplying water power to the public, and other corporations owning and controlling water power." (See Par. 11 B).

IV.

TERRITORIAL RIGHTS.

A. TERRITORY IN WHICH WATER MAY BE SUPPLIED.

13. COMPANIES FOR THE SUPPLY OF WATER TO THE PUBLIC, AND COMPANIES FOR THE SUPPLY, STORAGE AND TRANSPORTATION OF WATER AND WATER POWER FOR COMMERCIAL AND MANUFACTURING PURPOSES.

The act of April 29th, 1874, as amended by the act of May 16th, 1889, (P. L. 226), provides that water and water power companies shall have power to supply water in "the town, borough, city or district where they may be located." Under this language it has been held that such water company is limited in the territory which it may supply to a single municipal division—a city, borough or township or a part thereof. Two or more municipalities, however, may not be joined: Bly v. White Deer Mountain Water Co., 197 Pa. 80.

A riparian property owner on a stream from which a water company takes its supply has no standing under the Act of June 19, 1871, (P. L. 1360), to restrain such company from delivering water within the limits of the township it is authorized to supply to a railroad company, though the railroad company carries the water so received beyond the limits of such township in its own pipes; Bland v. Tipton Water Co., 222 Pa. 285.

Nor has a city the right to restrain a water company from so delivering water within the limits of the township it is authorized to supply to a railroad company, and carried by the railroad company in its own pipes into such city for its own use, even though the city has the exclusive privilege of supplying its inhabitants with water: Harrisburg v. Pennsylvania Railroad Co. et al., 33 Pa. CC. 641.

14. EXTENSION OF TERRITORY.

"Any company heretofore incorporated or hereafter to be incorporated for the purpose of supplying water to the public in any town, borough or city, may, upon the written request of the owners of a majority of the lots of land in any tract or district adjacent to such town, borough or city, have power and authority to extend its plant or works for the supply of water into such tract or district, with such rights and subject to such duties within such tract or districts as may have been conferred and imposed by its charter, within the town, borough or city therein designated: Provided, That such written request shall contain a description of such tract or district, and be recorded in the office of the recorder of deeds in and for the proper county, and thereupon a certified copy of the record of such proceedings as appears of record in the office of the recorder of deeds shall forthwith be transmitted to and filed in the office of the Secretary of the Commonwealth:" Act May 21st, 1901, (P. L. 270).

The act of May 28th, 1907, (P. L. 278), (See Par. 25), requiring a water company obtaining its water supply, or any part thereof, from a source lying within the corporate limits of any municipality, city, borough or township in the Commonwealth to furnish such municipality and the inhabitants thereof with water, would seem to operate as an extension to the territory of a water company which procured its supply from a point without the district which it was incorporated to supply.

It would also seem that the acts authorizing the merger and consolidation of two or more water companies, and the purchase by one water company of the property and franchise of another, would operate as an extension of the territory in which the company so formed by merger and consolidation, or in which the company so purchasing the property and franchises of another water company, would be authorized to supply water.

15. COMPANIES FORMED UNDER CLAUSE 18, SECTION 2, ACT APRIL 29TH, 1874.

Companies formed under clause 18 of section 2 of the act of April 29th, 1874, are not required to confine their operations to a single city, borough or district: In re Portland Water and Power Co., Op. Atty. Gen., 1903-04, p. 34.

B. SOURCE OF SUPPLY AND LOCATION OF WORKS.

16. SOURCE OF SUPPLY OF WATER.

Section 34 of the act of April 29th, 1874, as amended by the act of May 16th, 1889, (P. L. 226), provides that companies formed under its provisions "shall have power to appropriate so much of the water from the rivers, creeks, canal water-rights and easements within or without the limits of the city, borough or place in which said company may, by its charter, be located as may be necessary for its purposes."

The act of April 13th, 1905, (P. L. 152), took away the right to appropriate waters conferred by the act of May 16th, 1889, but the right to go outside of the city, borough or district in order to procure the supply remains.

17. LOCATION OF WORKS.

Under the provisions of the act of May 16th, 1889, (P. L. 226), a water company may locate its works, and condemn the land therefor, outside of the city, borough or district to be supplied: Keller v. Riverton Water Co., 161 Pa. 421.

V.

EXCLUSIVE PRIVILEGES.

18. EXCLUSIVE PRIVILEGE GRANTED.

"The right to have and enjoy the franchises and privileges of such corporation within the district or locality covered by its charter shall be an exclusive one; and no other company shall be incorporated for that purpose until the said corporation shall have from its earnings realized and divided among its stockholders during five years a dividend equal to eight percentum per annum upon its capital stock:" Act April 29th, 1874, section 34, clause 3.

Where a water company was incorporated by special act prior to April 29th, 1874, with an exclusive privilege, and accepted the act of April 29th, 1874, subsequently to the passage of the act of June 2nd, 1887, it lost the exclusive privilege granted by clause 3 of section 34 of the act of April 29th, 1874: Tyrone Gas & Water Co. v. Borough of Tyrone, 195 Pa. 566.

The exclusive privileges granted by clause 3 of section 34 of the act of April 29th, 1874, do not exist as against individuals who have been given authority by a municipality to lay pipes in the streets and supply the inhabitants with water: Freeport Water Co., v Prager, 129 Pa. 605, nor as against a municipality: Lehigh Water Co.'s App. 102 Pa. 515.

Where water is supplied by a water company to a railroad company within the limits of the district of the water company, and by the railroad company piped out into an adjoining district, a city, there is no infringement of the exclusive privilege which the city has to furnish its inhabitants with water: Harrisburg v. Pennsylvania Railroad Co., et al. 33 Pa. C. C. 641.

19. EXCLUSIVE PRIVILEGE TAKEN AWAY.

Section 3 of the act of June 2nd, 1887, (P .L. 310), amended clause 3 of section 34 of the act of April 29th, 1874, so as to give exclusive privileges only to corporations for the manufacture and supply of gas for light only to the public, and this by implication repeals the provisions of the statute granting exclusive privileges to water companies: Luzerne Water Co. v. Toby Creek Water Co., 148 Pa. 568; Center Hall Water Co. v. Center Hall Borough, 186 Pa. 74; Boyertown Water Co. v. Boyertown Borough, 200 Pa. 394.

Companies formed, therefore, prior to June 2nd, 1887, and which have not realized and declared dividends equal to eight per centum per annum for a period of five years now have exclusive privileges, but companies formed subsequently to that time do not have such exclusive privileges.

A water company chartered in March, 1887, but which failed to record its charter in the county where its operations were to be carried on until May 31d, 1888, did not acquire an exclusive privilege: Borough of Braddock v. Penn Water Co., et al., 189 Pa. 379.

20. FORFEITURE OF EXCLUSIVE PRIVILEGES.

Clause 3 of section 34 of the act of April 29th, 1874, conferring exclusive privileges upon water companies incorporated before the passage of the act of June 2nd, 1887, provides that such privilege shall be exclusive until the company "shall have from its earnings realized and divided among its stockholders during five years a dividend equal to eight per centum per annum upon its capital stock." The realizing and dividing of such dividend, therefore, forfeits the exclusive privilege of the company: Phillipsburg Water Co. v. Citizens Water Co., 18 Pa. C. C. 625.

In computing such dividends the capital stock is to be taken at the amount paid in without considering increases of capital made from earnings, but it is immaterial whether the earnings are paid in cash or in stock: Phillipsburg Water Co. v. Citizens Water Co., 18 Pa. C. C. 625.

A water company incorporated prior to the passage of the act of June 2, 1887, which has paid dividends at the rate of ten per cent. per annum for twenty years, has no exclusive privilege to supply water in a borough: Dorrance v. Bristol Borough, 224 Pa. 464.

21. EFFECT OF ANNEXATION UPON EXCLUSIVE PRIVILEGE.

When a borough by contract has given a water company the exclusive privilege of supplying water, and the company has laid pipes and supplied the inhabitants of such borough, the fact that the borough was subsequently annexed to a city does not give the city the right to lay pipes and supply water within the territory formerly included within the borough, and the water company may restrain the city from doing so: Pennsylvania Water Works Co. v. Pittsburg, 56 Pitts. 177.

VI.

DUTIES WITH REFERENCE TO QUALITY AND QUANTITY OF WATER.

22. MUST FURNISH A SUFFICIENT QUANTITY OF PURE WATER.

"The said corporations shall at all times furnish pure .... water, and any citizen using the same may make complaint of impurity or deficiency in quantity, or both, to the court of common pleas of the proper county, by bill filed, and after hearing the parties touching the same, the said court shall have power to make such order in the premises as may seem just and equitable, and may dismiss the complaints or compel the corporation to correct the evil complained of:" Act April 29th, 1874, section 34, clause 3, as amended by act of June 2nd, 1887, (P. L. 310).

"The provisions of the third clause of section thirty-four of the act approved April twenty-ninth, Anno Domini one thousand eight hundred and seventy-four, entitled 'An act to provide for the incorporation and regulation of certain corporations,' which reads as follows: 'Provided, That the said corporation shall at all times furnish pure gas and water, and any citizen using the same may make complaint of impurity or deficiency in quantity, or both, to the court of common pleas of the proper county, by bill filed, and after hearing the parties touching the same, the said court shall have power to make such order in the premises as may seem just and equitable, and may dismiss the complaints or compel the corporation to correct the evil complained of,' be and the same is hereby extended and made applicable to all gas and water companies incorporated under any of the laws of this Commonwealth.

"All proceedings authorized by said proviso shall be in accordance with the rules of equity practice now existing: Provided, That all lawful fees and costs accruing in such proceeding shall be taxed and allowed as provided by the equity fee bill in the respective court and paid by the unsuccessful party.

"Either party may appeal to the supreme court as in cases in equity:" Act June 10th, 1881, (P. L. 112).

"Any such water company" (for the supply of water to the public) "shall be and is hereby empowered to acquire and hold by purchase, or condemnation, such lands along and contiguous to streams of water, or reservoirs from which water is taken for public use, as may be necessary to preserve them from contamination:" Act May 26th, 1893, section 2, (P. L. 158).

23. WHAT CONSTITUTES PURITY.

The water need not be chemically pure, but must be ordinarily and reasonably so. When the company has procured a proper source of supply it is bound to exercise diligence in the effort to preserve the water from pollution and to deliver it to the public in no worse condition than that in which it is taken from the source of supply: Brymer v. Butler Water Co. 172 Pa. 489.

When the water is found to be "wholesome, but not pure," the law has been sufficiently complied with: Commonwealth v. Towanda Water Works, 22 W. N. C. 429.

Ordinarily pure and wholesome water naturally means such as is reasonably clean from dirt and discoloration and odors, reasonably clear from bacteria and coli, or any other infection or contamination which renders the water unfit for domestic use and unsafe and dangerous to individuals. Modern investigation and scientific attainments demonstrate that water from polluted sources can by proper filtration be made reasonably safe and pure, and, therefore, the standard of purity as fixed by the well-recognized authorities must be secured: Peffer v. Pennsylvania Water Co., 221 Pa. 578.

A water company is not complying with the law where the evidence shows that its pipe line was connected with a mill pond into which the sewage of the town was discharged, and that during five years, at periods of low water, and where fire occurred, water from the pond was pumped into the main service lines of the company, and that such water polluted the other water, and frequently rendered it injurious and unwholesome and unfit for drinking or cooking, and even for washing; and the fact that the connection with the pond was maintained under agreement with the borough is immaterial: Commonwealth v. Potter County Water Co., 212 Pa. 463.

24. REMEDIES WHEN WATER SUPPLIED IS IMPURE.

In addition to the remedy given by clause 3 of section 34 of the act of April 29th, 1874, as amended by the act of June 2nd, 1887, to individual users of water by complaint to the court of common pleas when the water furnished is impure, (See Par. 22), the Commonwealth may proceed by quo warranto to forfeit the charter of the company: Commonwealth v. Towanda Water Works, 22 W. N. C. 429; Commonwealth v. Potter County Water Co., 212 Pa. 463.

The Commonwealth at the relation of the Attorney General may proceed in equity to restrain an oil operator from polluting with salt, water used by a water company for public supply: Commonwealth v. Russel, et al., 172 Pa. 506.

A water company which has title by purchase may restrain the pollution of a stream caused by an upper riparian owner: Scranton Water Co. v. Hall, 9 Lack. L. N. 80.

A borough which is a user of water may make complaint concerning impurity the same as an individual user: DuBois Borough v. DuBois City Water Works Co., 176 Pa. 430.

When a water company furnishes water unfit for domestic use or steam purposes it may be restrained by the court from collecting water rents, but the court cannot decree that the company must obtain its supply from some other designated point. The company has the option of going out of business or seeking a new source of supply: Brymer v. Butler Water Co., 172 Pa. 489.

A court may, however, where on bill in equity it has found the water to be impure, and enters a decree directing the company to provide pure water, also direct the company to file a statement within a specified time showing what it proposes to do to comply with the law: Peffer v. Pennsylvania Water Co., 221 Pa. 578.

25 REGULATION BY HEALTH DEPARTMENT.

"Every municipal corporation, private corporation, company, and individual supplying or authorized to supply water to the public, within the State, shall, within sixty days after the passage of this act, file with the Commissioner of Health a certified copy of the plans and surveys of the waterworks, with a description of the source from which the supply of water is derived; and no additional source of supply shall thereafter be used, without a written permit from the Commissioner of Health, as hereinafter provided:" Act April 22nd, 1905, section 2, (P. L. 260).

"No municipal corporation, private corporation, company, or individual shall construct waterworks for the supply of water to the public within the State, or extend the same, without a written permit, to be obtained from the Commissioner of Health if, in his judgment, the proposed source of supply appears to be not prejudicial to the public health. The application for such permit must be accompanied by a certified copy of the plans and surveys for such waterworks, or extension thereof, with a description of the source from which it is proposed to derive the supply; and no additional source of supply shall subsequently be used for any such waterworks without a similar permit from the Commissioner of Health. When application shall be made for a permit, under either of the above provisions of this section, it shall be the duty of the Commissioner to proceed to examine the application without delay and as soon as possible, he shall make a decision in writing; and, within thirty days after such decision, the corporation, company, or individual making such application may appeal to any court of common pleas of the county, and said court shall, without delay, hear the appeal, and shall make an order approving, setting aside, or modifying such decision, or fixing the terms upon which said permit shall be granted. The penalty for failure to file copies of plans, surveys, and descriptions of existing water works, within the time hereinbefore fixed, and for the construction or extension of water works, or for the use of an additional source of supply, without a permit from the Commissioner of Health, shall be five hundred dollars, and further penalty of fifty dollars per day for each day that the works are in operation contrary to the provisions of this act, recoverable by the Commonwealth, at the suit of the Commissioner of Health, as debts of like amount are recoverable by law:" Act April 22nd, 1905, section 3, (P. L. 260).

"The term 'waters of the State' wherever used in this act, shall include all streams and springs, and all bodies of surface and of ground water, whether natural or artificial, within the boundaries of the State:" Act April 22nd, 1905, section 1, (P. L. 260).

26. DUTY TO SUPPLY MUNICIPALITY IN WHICH SUPPLY IS PROCURED.

"Any water company obtaining its water supply, or any part thereof, from a source lying within the corporate limits of any municipality, city, borough, or township, in this Commonwealth, shall furnish such municipality and the inhabitants thereof with water, or otherwise forfeit its right to a sufficient quantity of water, from such source, as will supply the needs of such municipality, city, borough, or township, and the inhabitants thereof:" Act May 28th, 1907, section 1, (P. L. 278).

27. PENALTY FOR FAILURE.

"Should any water company fail to furnish water to any municipality, city, borough, or township, or the inhabitants thereof, under the conditions described in section one of this act, it shall be the duty of the city or borough council, the commissioners or supervisors of the township, as the case may be, to pass a resolution setting forth the fact that the municipality and the inhabitants thereof are not being served with water, and that they desire the same; a copy of which resolution shall be served on the president, secretary, or attorney of the water company having its source of supply within the corporate limits of the municipality thus affected; whereupon it shall be the duty of such water company to prepare a statement, setting forth in full its reason for its failure to supply water to the affected district; which statement must also include any plans in contemplation, if there be any, to supply at some future time to such district, stating when such supply may be expected; which statement must be verified by oath or affirmation by the president or secretary of such water company, and filed with the State Water Supply Commission, at Harrisburg, within thirty days from the date of service of the original notice on such water company by the municipality affected.

"Failure on the part of the president or secretary of such water company to file a statement, as above directed, shall be deemed a misdemeanor on their part, and, upon conviction thereof, they shall be sentenced to undergo an imprisonment not exceeding six months, and pay a fine not exceeding one thousand dollars, or either or both, at the discretion of the court. If, in the judgment of the State Water Supply Commission, the reasons filed are of such a character as to indicate that no relief will be given the municipality complaining, in the way of a water supply, within a reasonable time, then said State Water Supply Commission may recommend to the Governor that letters patent be issued and a charter granted to any association of individuals who may legally form a water company, and who may apply for the same, and who will agree, in their application for a charter, to supply water to the municipality, city, borough or township thus affected, and the inhabitants thereof, and for that purpose to have the right to condemn, take, or appropriate a sufficient quantity of water from any source of supply lying within the corporate limits of any municipality, city, borough, or township thus affected, as is adequate to supply the needs of such municipality, city, borough, or township, and the inhabitants thereof: Provided, however, That any municipality, where conditions prevail such as are described in sections one and two of this act, shall have the right, with the consent and approval of the State Water Supply Commission, to condemn, take or appropriate a sufficient quantity of water, from any source of supply lying within the corporate limits of any municipality or municipalities affected, as is adequate to meet the needs of such municipality or municipalities, and the inhabitants thereof, and no damages shall be collected by, or allowed to, any water company for any water appropriated under the provisions of this act:" Act May 28th, 1907, section 2, (P. L. 278).

28. DUTY OF COMPANIES FOR THE SUPPLY, STORAGE AND TRANSPORTATION OF WATER AND WATER POWER FOR COMMERCIAL AND MANUFACTURING PURPOSES.

It is the duty of companies formed for the supply, storage and transportation of water and water power for commercial and manufacturing purposes to supply all citizens of the district in which it is authorized to operate that demand it with water and water power for such purposes: Jacobs v. Clearview Water Supply Co., 220 Pa. 388.

VII.

RATES.

29. COURTS OF COMMON PLEAS HAVE JURISDICTION TO HEAR AND DETERMINE COMPLAINTS AS TO RATES.

"The court of common pleas of the proper county shall have jurisdiction and power upon the bill or petition of any citizen using gas or water of any of said companies to hear, inquire and determine as to the charges thereof for gas or water so furnished, and to decree that the said bill be dismissed, or that the charges shall be decreased, as to the said court may seem just and equitable, and to enforce obedience to their decrees by the usual process:" Act of April 29th, 1874, section 34, clause 7.

30. EXTENT OF JURISDICTION.

A court of common please has no authority to prepare a schedule of rates at which the company is obliged to sell its water. The right to fix the rate belongs to the company and can only be interferred with by the court if exhorbitant: Brymer v. Butler Water Co., 179 Pa. 231.

Where, however, a water company and a borough agree on certain fixed rates, and no provision is made for a minimum rate, the court may reform the contract to meet certain changed conditions and circumstances, and allow increased rates so as not to work a confiscation of the company's property: Wilkinsburg Borough v. Water Co., 56 Pitts. 135.

31. MUNICIPALITY CANNOT REGULATE RATES.

A city or borough council has no authority to fix by ordinance, the rates to be charged by a water company, nor can this be done as a condition upon which the company is allowed the use of the streets and highways: Schroeder v. Scranton Gas & Water Co., 20 Sup. Ct. 255. But it would seem that this may be done by agreement with the company: Wilkinsburg Borough v. Water Co., 56 Pitts. 135.

32. REASONABLENESS OF RATES.

Rates of a water company must be reasonable, but a system of charges that yield only sufficient income to maintain the plant, pay fixed charges and operating expenses, provide a suitable sinking fund for the payment of indebtedness, and pay a fair profit to the stockholders, is not unreasonable and will not be set aside by the courts: Brymer v. Butler Water Co., 179 Pa. 231.

Where the total income of a water company amounted to about $7,000 from a population of 6,000, a demand of $3,000 for fire hydrants was reduced to $1,100.00: Leechburg Borough v. Leechburg Water Works Co., 219 Pa. 263.

33. CHARTER LIMITATIONS.

Where a water company formed under special act prior to the passage of the act of April 29th, 1874, is limited by its charter in the amount it can charge for water, it cannot charge more than such amount, even though it subsequently accepts the Constitution and the act of April 29th, 1874: White Haven Borough v. White Haven Water Co., 209 Pa. 166; Trimmer v. White Haven Water Co., 4 Kulp, 293.

34. WATER COMPANIES MAY NOT DISCRIMINATE.

A company has no right to establish a schedule of rates whereby one consumer will be compelled to pay at a higher rate than another for the same service. Such a system of charges amounts to an unjust discrimination and will be prevented by mandamus: Long v. Springfield Water Co., 8 Del. Co. 151.

A water company's charge for borough hydrants for fire protection must be in reasonable proportion to rates established for other demands; and where the total income of a water company was about $7,000.00 from a population of 6,000 a demand of $3,000 for fire hydrants was reduced to $1,100.00: Leechburg Borough v. Leechburg Water Works Co., 219 Pa. 263.

It is not an unreasonable discrimination for a water company to charge owners of a boarding house additional rates for each five boarders or roomers, or fraction thereof, after the first five in the house: Herlacher v. Borough, 8 Dauph. 148.

35. RIGHT OF COMPANY TO ESTABLISH RULES AND REGULATIONS.

A water company has the right to make reasonable rules and regulations in regard to the use of water and to enforce payment therefor: Brumm's Appeal, 22 W. N. C. 137: Miller v. Wilkes-Barre Gas Co., 206 Pa. 254.

It may shut off the water supply for failure to pay rents due; Smith v. Scranton Gas & Water Co., 5 Lack. L. N. 235; even though arrears are due from former owner whose title was sold at Sheriff's sale: Brumm's Appeal, 22 W. N. C. 137; or, it would seem, any predecessor in title: Miller v. Wilkes-Barre Gas Co., 206 Pa. 254.

But in order to place the liability for the unpaid bills of a former owner of the property upon a subsequent owner, and to enable the company to shut off the supply for failure of such subsequent owner to pay the same, it would seem that there must have been either actual notice that he would be required to pay such bill, or constructive notice by a resolution or by law of the company: Miller v. Wilkes-Barre Gas Co., 206 Pa. 254.

When the charter of a water company fixes the maximum price that may be charged for water the company may not shut off the water supply for failure of the consumer to pay more than such maximum amount: Trimmer v. White Haven Water Co., 4 Kulp. 293.

The allowing of a discount for payment in advance, or for payment on or before a certain day, and the imposing of a penalty for nonpayment on a certain day, would seem to be reasonable rules: Mount

Holly Water Co., v. Borough of Mount Holly Springs, 10 Super. Ct. 162. See also Bower v. United Gas Improvement Co., 37 Super Ct. 113.

A water company may receive payments of rents in advance: Mt. Holly Water Co. v. Borough of Mt. Holly Springs, 10 Sup. 162; Trimmer v. White Haven Water Co., 4 Kulp. 293.

A water company may allow a discount for payment in advance or for payment on or before a certain day, or may impose a penalty for non-payment upon a certain day: Mt. Holly Water Co. v. Borough of Mt. Holly Springs, 10 Sup. 162.

On this point see also Bower v. United Gas Improvement Co., 15 Dist. 251: Bower v. United Gas Improvement Co., 15 Dist. 409.

Rules of a water company allowing a discount for prompt payment, or imposing a penalty for non-payment, evidently intended to apply to private consumers, cannot be construed as applicable to a municipality having a contract with the company for water for hydrants and fire plugs, entered into prior to the adopting of the rules by the company: Mt. Holly Water Co. v. Borough of Mt. Holly Springs, 10 Sup. 162.

VIII.

EMINENT DOMAIN.

A. COMPANIES FOR THE SUPPLY OF WATER TO THE PUBLIC, AND COMPANIES FOR THE SUPPLY, STORAGE AND TRANSPORTATION OF WATER AND WATER POWER FOR COMMERCIAL AND MANUFACTURING PURPOSES.

36. APPROPRIATION OF LAND AND MATERIAL AUTHORIZED.

"Where such companies shall be incorporated for the supply of water to the public, or for storing and transportation or supply of water and water power for commercial and manufacturing purposes, they shall have power to provide, erect and maintain all works and machinery necessary or proper for raising and introducing into the town, borough, city, or district where they may be located, a sufficient supply of pure water, or water and water power as aforesaid, and for that purpose may provide, erect and maintain all proper buildings, cisterns, reservoirs, pipes and conduits, for the reception and conveyance of water or water power .... and it is further authorized and empowered by itself, its agents, engineers and workman, and with its and their tools, carts, wagons, beasts of draught or burden, to enter upon such lands and enclosures, streets, lanes, alleys, roads and highways and bridges as may be necessary to occupy, or to obtain materials for the construction of said works, and to occupy, ditch and lay pipes through the same, and the same from time to time to repair, subject to such regulations in regard to streets, roads, lanes and other highways and impairing the free use thereof as little as possible, and subject to such regulations as the councils of said borough, town, city or district may adopt in regard to grades or for the protection and convenience of public travel over the same, and if any injury be done to private property the said company shall make compensation therefor in the manner provided for in the forty-first section of this act." (See Par. 49), Act April 29th, 1874, section 34, clause 2, as amended by Act May 16th, 1889, (P. L. 226).

The act of May 16th, 1889, confers upon companies for the supply of water to the public, the right of eminent domain, and under it to take, when agreement cannot be made with the owner thereof, the land necessary for the proper construction and operation of their works: Keller v. Riverton Water Co., 161 Pa. 422.

Where, however, such a company admits that it intends to supply a railroad company only, it will be restrained by injunction from taking a private property under the right of eminent domain: Watson v. Water Co., 9 Lack. 171.

The said act of May 16th, 1889, also confers upon companies for the supply, storage and transportation of water and water power for commercial and manufacturing purposes the right of eminent domain over land and material in as much as the Legislature clearly intended by said Act to confer upon such companies the same rights, privileges and powers as those possessed by companies chartered for the supply of water to the public. The fact that the principal consumer of such a company will be a railroad company, and that owing to the nature of the country very few citizens are engaged in commercial and manufacturing enterprises such as will require water or water power, is immaterial: Jacobs v. Clearview Water Co., 220 Pa. 388.

"Before any such water company shall proceed to occupy any land or enclosure, or to obtain and use any material therefrom, for the purpose mentioned in this section, it shall be lawful for them to agree with the owner or owners thereof for the purchase of so much thereof as may be necessary, or as to the amount of injury sustained thereby; but in case they cannot agree, proceedings shall be had as provided in section forty-one of this act," (See Par. 49): Act April 29th, 1874, section 34, clause 4, amended by Act June 12th, 1879, (P. L. 177).

37. EXTENT OF APPROPRIATION OF LAND AND MATERIAL.

The land appropriated by a water company for the proper construction and operation of its works may be within or without the district which it has been chartered to supply with water: Keller v. Riverton Water Co., 161 Pa. 422.

Under the act of May 16th, 1889, water companies have the power to condemn franchises and property held for public use and are not limited merely to private property: Independent Gas Co. v. Butler Water Co., 210 Pa. 177. To do this there must, however, exist a necessity so absolute that without the right the grant will be defeated: Philadelphia Water Supply Co. v. Susquehanna Canal Co., 4 Dist. 637.

It would seem, however, that the right to condemn franchises and property held for a public use cannot extend to a practical destruction of another public corporation: Philadelphia Water Supply Co. v. Susquehanna Canal Co., 4 Dist. 637.

A water company does not exhaust its power of eminent domain over land by a single taking: Keller v. Water Co., 34 Super. Ct. 301.

Where a water company has once exercised the right of eminent domain in the location of its pipe line, it may not lay out an entirely new and additional line over the same land, no matter how convenient such new line may be. It may enlarge its existing line, but not re-locate one: McKay v. Pennsylvania Water Co., 6 Dist. 364.

Property and franchises of a water company may be condemned by a city and the appraisement must include the fair valuation of the water works, property, rights and franchises of the company. In such a proceeding the entire cost is payable by the city: Monongahela Water Co.'s case, 223 Pa. 323.

Land formerly appropriated by a water company for a reservoir may also be condemned for road purposes: Road in Herrick & Ararat Townships, 16 Super. Ct. 579.

A water company which owns an extensive tract of land comprising a watershed, but which has not formally appropriated such land to public use nor made actual use of it, and shows no present or future necessity for it, cannot restrain a railroad from appropriating so much of it as may be necessary to straighten its roadway: Scranton Water Co. v. Railroad, 9 Lack. 37.

38. ADDITIONAL RIGHTS GIVEN TO COMPANIES FOR THE SUPPLY OF WATER TO THE PUBLIC.

"Whenever any water company incorporated for the purpose of supplying water to the public shall have found, or shall find it necessary in storing water to occupy and flow with water portion of any turnpike or any public road in the Commonwealth, the said company shall cause the same to be reconstructed forthwith, at their own proper expense, on a favorable location to be approved by the court of quarter session of the proper county, and in as perfect a manner as the original road, and are authorized to condemn land for that purpose whenever an agreement as to price cannot be had with the owners," Act May 26th, 1893, section 1, (P. L. 158).

"Any such water company shall be and is hereby empowered to acquire and hold by purchase, or condemnation, such lands along and contiguous to streams of water, or reservoirs from which water is taken for public use, as may be necessary to preserve them from contamination: Provided, That no land shall be taken for the uses mentioned in this act until just compensation shall have been made for property taken, injured or destroyed, which shall be paid or secured before such injury or destruction: And provided further, that any owner of land along said streams shall have the use of the water for farming and domestic purposes, with free ingress and egress at all times to such streams:" Act May 26th, 1893, section 2, (P. L. 159).

"The damage incurred in changing the location of any turnpike or public road as authorized by the first section of this act, and in acquiring lands to preserve water supply from contamination, as authorized by the second section of this act, shall be ascertained and paid by such water company in the same manner as is provided for in regard to the taking of lands, waters, materials, property and franchises, for the public purposes of such water company, and no lands, property or franchises, shall be taken for the uses mentioned in this act until just compensation shall have been paid or secured therefor:" Act May 26th, 1893, section 3, (P. L. 159).

39. APPROPRIATION OF WATER AUTHORIZED.

The act of May 16th, 1889, (P. L. 226), amending clause 2 of section 34 of the act of April 29th, 1874, in addition to extending the right to condemn land theretofore conferred upon companies for the supply of water to the public, to companies for the supply, storage and transportation of water and water power for commercial and manufacturing purposes, also conferred upon both classes of water companies the right to appropriate waters, providing that such companies "shall have power to appropriate so much of the water from the river, creeks, canal water rights and easements, within or without the limits of the city, borough, or place in which said company may by its charter be located, as may be necessary for its purposes, and all damage done thereby shall be ascertained, recovered and paid for in the forty-first section of the act to which this a supplement." (See Par. 46). .... "Provided, That this act shall not apply to private springs or private water supplies."

40. EXTENT OF APPROPRIATION OF WATER.

The act of May 16th, 1889, authorizing the appropriation of water from rivers, creeks, canal water rights and easements, does not authorize the appropriation of the rivers, creeks, and canals themselves: Philadelphia Water Supply Co. v. Susquehanna Canal Co., 4 Dist. 637.

It has been held that a special act authorizing a water company to "appropriate such spring or springs, stream or streams of water as it may select," applied also to artificial water courses; City of Reading v. Althouse, 93 Pa. 400.

Inasmuch as a water company has no right to supply water to territory adjacent to its district, it has no authority under the right of eminent domain to condemn and appropriate water for that purpose: Bly v. White Deer Mountain Water Co., 197 Pa. 80.

Section 34 of the act of April 29th, 1874, authorizing water companies to appropriate the waters of a stream, contemplates a single taking and one assessment of damages. Where, therefore, it was shown that the company's intention was to appropriate the entire stream, evidence that the water of a stream was not entirely exhausted is immaterial: Miller v. Windsor Water Co., 148 Pa. 429.

41 RIGHT TO APPROPRIATE WATERS TAKEN AWAY.

"No water company, hereafter incorporated under any law shall have powers or exercise the right of eminent domain, as respects the appropriation of the streams, rivers or waters of this Commonwealth, or any of them, nor the land covered thereby:" Act April 13th, 1905 (P. L. 152).

This act affects all water companies incorporated subsequently to its passage, but companies incorporated before April 13th, 1905, still have the same power to appropriate water conferred by the act of May 16th, 1889, unless the right is forfeited.

The provision of the act refers to all waters within the State, whether flowing over lands owned by the State or by private owners: Bushkill Water Co., 18 Dist. 360; 36 Pa., C. C. 193.

42. RIGHT TO APPROPRIATE WATER MUST BE FORFEITED UPON CONSOLIDATION.

Section 2 of the act of June 7th, 1907 (P. L. 455), provides that no "agreement of merger and consolidation shall be approved by the said Water Supply Commission of Pennsylvania, nor by the Governor, until each of the corporations, parties thereto, shall have filed in the office of the Water Supply Commission of Pennsylvania a written acceptance, under the seal of said corporation and authorized by a majority of the stockholders thereof, both of this act and of the act approved April thirteenth, one thousand nine hundred and five, entitled 'An act providing that the right of eminent domain, as respects the appropriation of streams, rivers, or waters, or the land covered thereby, shall not be exercised by water companies incorporated under law,' agreeing to be subject to and bound by the provisions of both of said acts, with like effect as if said corporation had been formed subsequently to the passage of both of said acts: and shall, also, have filed a certified copy of said acceptance in the office of the Secretary of the Commonwealth."

43. RIGHT TO APPROPRIATE WATERS MUST BE FORFEITED UPON PURCHASE AND SALE OF PROPERTY AND FRANCHISES.

Section 3 of the act of June 7th, 1907, (P. L. 455), after providing that no sale of the franchises and property of one water company to another should be valid until a certificate filed by the company so purchasing, designating the future sources of supply, shall have been approved by a majority of the members of the Water Supply Commission, provides that "no such certificate shall be approved by the said Water Supply Commission of Pennsylvania until the corporation so purchasing shall have filed in the office of the Water Supply Commission of Pennsylvania a written acceptance, under the seal of said corporation and authorized by a majority of the stockholders thereof, both of this act and of the act approved April thirteenth, one thousand nine hundred and five, entitled 'An act providing that the right of eminent domain, as respects the appropriation of streams, rivers, or waters, or the land covered thereby, shall not be exercised by water companies incorporated under law,' agreeing to be subject to and bound by the provisions of both of said acts, with like effect as if said corporation had been formed subsequently to the passage of both of said acts, and shall have filed a certified copy of said acceptance in the office of the Secretary of the Commonwealth."

44. RIGHT TO APPROPRIATE WATERS GIVEN TO COMPANIES FOR THE SUPPLY OF WATER TO THE PUBLIC IN CERTAIN CASES.

The act of May 28th, 1907, (P. L. 278), which requires any water company to furnish a sufficient supply to the inhabitants of any city, borough or township in which it obtains its supply, or to furnish the Water Supply Commission with its reasons for not doing so, further provides: "If in the judgment of the State Water Supply Commission, the reasons filed are of such a character as to indicate that no relief will be given the municipality complaining, in the way of a water supply, within a reasonable time, then said State Water Supply Commission may recommend to the Governor that letters patent be issued and a charter granted to any association of individuals who may legally form a water company, and who may apply for the same, and who will agree, in their application for a charter, to supply water to the municipality, city, borough, or township thus affected, and the inhabitants thereof, and for that purpose to have the right to condemn, take or appropriate a sufficient quantity of water, from any source of supply lying within the corporate limits of any municipality, city, borough, or township thus affected, as is adequate to supply the needs of such municipality, city, borough or township, and the inhabitants thereof."

B. COMPANIES FORMED UNDER CLAUSE 18, SECTION 2, ACT OF APRIL 29TH, 1874.

45. APPROPRIATION OF LAND AND WATER AUTHORIZED.

Companies formed under the 18th paragraph of section 2 of the act of April 29th, 1874, as finally amended by the act of May 21st, 1889, (P. L. 259), and the act of May 9th, 1901, (P. L. 624), whose purpose, as stated in the said paragraph, is "the storage, transportation and furnishing of water for manufacturing and other purposes, and for the creation, establishing, furnishing, transmission and using of water power therefrom," are given by that paragraph "the right to take rivulets and land:" and by clause 4 of section 34 of the act of April 29th, 1874, it is provided with regard to such companies that "the right to take lands, waters or rivulets shall be exercised in the manner provided in the forty-first section of this act." (See Par. 46).

46. RIGHT TO APPROPRIATE WATERS TAKEN AWAY.

Whatever right to appropriate water may have been given to companies of this class exists only in companies incorporated prior to April 13th, 1905, companies incorporated since that time having no such right by virtue of the act of April 13th, 1905, (P. L. 152), taking away from water companies the right of eminent domain over waters. (See Par. 38).

47. RIGHT TO APPROPRIATE WATERS FORFEITED UPON CONSOLIDATION OR UPON PURCHASE AND SALE OF FRANCHISES AND PROPERTY.

Whatever rights to appropriate waters exists in such companies must be forfeited, as in the case of companies of the other two classes, upon merger and consolidation with another company, or upon the purchase or sale of the property and franchises of one company by or to another, by virtue of sections 2 and 3 of the act of June 7th, 1907, (P. L. 455). (See Par. 39, 40).

48. RIGHT TO APPROPRIATE EITHER LAND OR WATER MAY NOT EXIST AT ALL.

In Peifly v. Mountain Water Supply Co., 214 Pa. 340, and in Jacobs v. Clearview Water Supply Co., 220 Pa. 388, it was held that a corporation formed for "the purpose of storing, transporting and furnishing of water, with the right to take rivulets and land, and erect reservoirs for holding water for manufacturing and other purposes, and for the creation, establishing, furnishing, transmission and using water power therefrom" under paragraph 18 of section 2 of the Act of April 29th, 1874, and its supplements, "is presumably a corporation for private uses which cannot constitutionally be invested with the right of eminent domain." It would seem, therefore, that before any company of this class can be said to have the right to appropriate either land or water, the burden is upon it to show, in each particular case, that it is a public corporation for public use.

C. PROCEDURE UNDER RIGHT OF EMINENT DOMAIN.

49. METHOD OF TAKING LAND, MATERIAL AND WATER.

"That in all cases in which, under the provisions of this act, any corporation is permitted to take waters, streams, lands, property, materials or franchises for the public purposes thereof, and the said corporation cannot agree with the owner or owners of any such waters, streams, lands, materials or franchises, for the compensation proper for the damage done or likely to be done to or sustained by any such owner or owners of such waters, streams, land or materials, which such corporation may enter upon, use or take away, in pursuance of the authority herein given, or by reason of the absence or legal incapacity of any such owner or owners, no such compensation can be agreed upon, the court of common pleas of the proper county, on application thereto, by petition, either by said corporation or by the owner or owners of any one in behalf of either, shall appoint five discreet and disinterested freeholders of the proper county, and appoint a time not less than ten nor more than twenty days thereafter, for said viewers to meet at or upon the premises where the damages are alleged to be sustained, or the property taken, of which time and place five days' notice shall be given by the petitioner to the said viewers and the other party; and the said viewers or any three of them, having been first duly sworn or affirmed, faithfully, justly and impartially to decide and true report to make concerning all matters and things to be submitted to them, and in relation to which they are authorized to inquire in pursuance of the provisions of this act, and having viewed the premises, they shall estimate and determine the quantity, quality and value of said lands, streams or property so taken or occupied, or to be taken or occupied, or the materials so used or taken away, as the case may be, and having a due regard to and making a just allowance for the advantages which may have resulted, or which may seem likely to result to the owner or owners of said streams, land or materials, in consequence of the making the improvements or conducting the operations of such corporation or of the construction of works for which the property is to be taken; and after having made a fair and just comparison of said advantages and disadvantages, they shall estimate and determine whether any, and if any, what amount of damages has been or may be sustained, and to whom payable, and make report thereof to the said court; and if any damages be awarded, and the report be confirmed by the said court, judgment shall be entered thereon; and if the amount thereof be not paid within thirty days after the entry of such judgment, execution may then issue thereon, as in other cases of debt, for the sum so awarded, and the costs and expenses incurred shall be defrayed by the said corporation; and each of the said viewers shall be entitled to one dollar and fifty cents per day for every day necessarily employed in the performance of the duties herein prescribed, to be paid by such corporation.

"In all cases where the parties cannot agree upon the amount of damages claimed, or by reason of the absence or legal incapacity of such owner or owners no such agreement can be made, either for lands, streams, water, water-rights, franchises or materials, the corporation shall tender a bond with at least two sufficient sureties to the party claiming or entitled to any damages, or to the attorney or agent of any person absent, or to the guardian or committee of any one under legal incapacity, the condition of which shall be that the said corporation will pay, or cause to be paid, such amount of damages as the party shall be entitled to receive after the same shall have been agreed upon by the parties, or assessed in the manner provided for by this act: Provided, That in case the party or parties claiming damages refuse or do not accept the bond as tendered, the said corporation shall then give the party a written notice of the time when the same will be presented for filing in court, and thereafter the said corporation may present said bond to the court of common pleas of the county where the lands, streams, water or materials are, and if approved the bond shall be filed in said court for the benefit of those interested, and recovery may be had thereon for the amount of damages assessed, if the same be not paid or cannot be made by execution on the judgment in the issue formed to try the question.

"The viewers provided for in this section may be appointed before or after the entry for constructing said work or taking materials therefor, and after the filing of the bond hereinbefore provided for, and upon the report of said viewers, or any four of them, being filed in said court, either party, within thirty days thereafter, may file his, her or their appeal from said report to said court. After such appeal either party may put the cause at issue in the form directed by said court, and the same shall then be tried by said court and a jury, and after final judgment, either party may have a writ of error thereto from the supreme court, in the manner prescribed in other cases; the said court shall have power to order what notices shall be given connected with any part of the proceedings, and may make all such orders connected with the same as may be deemed requisite. If any exceptions be filed with any appeal to the proceedings, they shall be speedily disposed of; and if allowed, a new view shall be ordered, and if disallowed, the appeal shall proceed as before provided:" Act April 29th, 1874, section 41.

Where a water company has instituted condemnation proceedings, and has given a bond which has been accepted, it will not be allowed to discontinue the proceedings, for the reason that there has been a permanent taking: Weatherly Water Co's. Petition, 7 Dist. 561; 21 Pa. C. C. 330.

Where a water company has appropriated water for its corporate use, the right of the land owner to commence proceedings by petition for viewers under section 41 of the act of April 29th, 1874, does not depend either upon the filing of a bond by the company or the making of a specific appropriation of a definite quantity of water which the company intended to use: Bowers v. Citizens Water Co., 162 Pa. 9.

Where there has been a taking under the right of eminent domain by a water company, or an injury which amounts to a taking, for which compensation must be made, and the property and franchises of the company were sold at judicial sale before the compensation was made, the purchaser at judicial sale takes the property and franchises subject to the claim for compensation: Lycoming Gas & Water Co. v. Moyer, 11 W. N. C., 443.

Where the adaptability of land intended for use by a water company is obvious, preliminary entry and survey are not necessary: Keller v. Water Co., 34 Super. Ct. 301.

50. MEASURE OF DAMAGES FOR TAKING WATER.

The measure of damage for the appropriation of water is the difference in value of the whole property before and after the taking; the difference between what the property would have sold for when unaffected by taking and what it would sell for when so affected. To arrive at this the jury may consider the use to which the property is put: Miller v. Windsor Water Co., 148 Pa. 429.

The measure of damage to a mill owner on a stream below the point where water is taken is the depreciation in value of the mill property: how much less the property was worth to the owner or a bona fide intending purchaser after the appropriation than before: Lee et al. v. Springfield Water Co., 176 Pa. 223.

In ascertaining the amount of damages sustained by a riparian owner, the average condition of the stream for a number of years is the proper basis, and not its condition in one particular season: Phillipsburg Water Co. v. Citizens Water Co., 43 W. N. C. 382.

Where a water company condemns water the damages are to be estimated as of the time of the taking, and must include the amount of water, the right to divert which is taken, irrespective of the amount actually diverted: James v. West Chester Borough, 220 Pa. 490.

In a proceeding against a water company to assess damages, for injury to a mill property, witnesses for the plaintiff, who are millers or manufacturers, familiar with the property in question and in a general way with the market value of property in the neighborhood, may express their opinion as to the value of the condemned property, and also that there has been a decrease in the supply of water to the mill affecting the operation of the plant: Mengell's Ex'rs v. Mohnville Water Co., 224 Pa. 120.

D. RIPARIAN OWNERSHIP.

51. WATER COMPANIES AS RIPARIAN OWNERS.

Where a water company has the right of eminent domain, but takes water from a stream for its corporate purposes not by virtue of that right, but by virtue of its right as riparian owner, it has no other or higher right than any other riparian owner, regardless of its business needs: Philadelphia & Reading Railway Co. v. Pottsville Co., 182 Pa. 418.

Where a water company takes water from a stream as riparian owner without having condemned it, it has no standing to enjoin a new company from taking water from the same stream, at a point higher up, where it appears that the stream furnishes twenty times the water which the first company takes: its rights are only those of a riparian owner: Phillipsburg Water Co. v. Citizens Water Co., 189 Pa. 23.

A water company which is the owner of land upon which there is a spring of water cannot divert the stream flowing from such spring without proceeding under the right of eminent domain, and making compensations to the lower riparian owners for the loss caused by such diversion: Lord v. Meadville Water Co., 135 Pa. 122.

Where a water company has title by purchase it has the same rights as other owners to restrain the pollution of a stream: Scranton Water Co. v. Hall, 9 Lack. L. N. 80.

The mere non-riparian use of water by a water company through pipes gives rise to no inference of riparian possession; and where a water company takes water through pipes from a reservoir which it has never acquired by condemnation or by purchase, it has no right as a lower riparian owner to restrain the pollution of a stream above. In such a case a water company cannot restrain the maintenance along the watershed of a hog farm or slaughter house from which the refuse percolates to a stream which feeds the reservoir: Scranton Water Co. v. Hall, 8 Lack., L. N. 348.

IX.

RIGHT TO DAM STREAMS.

52. AUTHORITY.

There does not appear to be any special authority vested in companies for the supply of water to the public, or for the supply, storage, and transportation of water and water power for commercial and manufacturing purposes, as such, to dam public or navigable rivers or streams. As regards private streams such companies, of course, stand in the same position as other corporations or individuals where they are riparian owners, and as regards public or navigable streams the only authority which they appear to have is that which in general belongs to all other corporations or individuals. Section 1 of the act of March 23rd, 1803, (4 sm. 20), provided that, "All and every person or persons owning lands adjoining any navigable stream of water declared by law, a public highway, except the rivers Delaware, Lehigh and Schuylkill, are hereby authorized to erect a dam or dams for a mill or mills or other water works upon any such stream of water adjoining their own lands and to keep the same in good repair and also to lead off thereby on his or their own land so much of the water of such stream as may be necessary for his or their mill, or mills, or other water works; Provided, that the said person or persons, his or their heirs and assignees in erecting the said dam or dams, or keeping them in repair, shall not obstruct the navigation of such stream or prevent fish from passing up the same; And, provided further, That the person or persons so erecting said dam or dams shall not infringe on or injure the rights and privileges of the owner or possessor of any private property on such stream."

This act licenses only such erections in a river as is subservient to the use of water power, and, hence, does not justify making a pool for rafts: Commonwealth v. Church, 1 Pa. 105.

It does not authorize the erection of a dam for the purpose of creating an artificial flood to carry logs down the stream: DuBois v. Glaub, 52 Pa. 238.

The right conferred by this act in respect of the great rivers of the State which are navigable by nature, and, therefore, public highways at the common law, is merely a license which may be revoked whenever the paramount interests of the public shall require it: New York & Erie Railroad Co. v. Young, 33 Pa. 175.

The act of July 2nd, 1895, (P. L. 432), providing that corporations for the supply, storage or transportation of water and water power for commercial and manufacturing purposes be authorized and empowered to determine the character, design and construction of the works and the use to be made of the water and water power, provides that such companies may "by themselves, their agents, engineers and workmen cause to be located, constructed, maintained, repaired and operated under the law and supplements, to which this is a further supplement, (Act of April 29th, 1874), the said works and all machinery, *dams*, buildings, cisterns, races, canals, waterways, reservoirs, pipes, conduits, lines, plants, apparatus, fixtures and appliances, deemed necessary." It is doubtful, however, if this act was intended, or could be construed, to authorize corporations of this class to build dams in public or navigable rivers, the provision more likely referring to the building of such dams as a corporation may be from some other source authorized to build, that is, dams in private streams, of which they are the owners, or dams which they, in common with other corporations and individuals, may be authorized to build by virtue of the act of May 28, 1803.

53. COMPANIES FORMED UNDER CLAUSE 18, SECTION 2, OF THE ACT OF APRIL 29TH, 1874, AND ITS AMENDMENTS.

The Act of May 21st, 1889, (P. L. 259), amending the act of June 22nd, 1883, (P. L. 156), which was an amendment of clause 18, Section 2, of the Act of April 29th, 1874, authorizes the formation of companies "for the storage, transportation and furnishing of water, with the right to take rivulets and land and erect reservoirs for holding water for manufacturing and other purposes, and for the creation, establishing, furnishing, transmission and using of water power therefrom, *the construction of dams in any stream*, and the driving and floating of saw logs, lumber and timber on and over any stream not exceeding twenty (thirty-five by amendment of July 9th, 1901, P. L. 624) miles in length, and the heads of all streams not exceeding twenty (thirty-five) miles in length from their source, by the usual methods of driving and floating logs, timber and lumber on streams."

Section 2 of said act provides "That corporations organized for the purpose of erecting reservoirs for the storage of water, *construction of dams*, transmission of power and the driving and floating of logs, timber and lumber on streams not exceeding twenty (thirty-five) miles in length, or on the heads of all streams not exceeding twenty (thirty-five) in length from their source, shall have power to clear out, improve and use any stream or the head of any stream not exceeding in length twenty (thirty-five) miles from its source, *to purchase dams and erect new dams thereon*, may straighten, deepen, crib and widen such stream, or the head of any stream for the distance aforesaid as they may deem proper, and may generally use and manage the streams and the head of streams for the distance aforesaid and their improvements thereon, for the floating of logs, lumber and timber thereon, by both natural and artificial floods in their discretion, but in such manner as not to obstruct the descending navigation by rafts and boats."

54. DAMS MUST PERMIT THE PASSAGE OF FISH.

"From and after the passage of this act, any person, company or corporation, owning or maintaining a dam or dams, or who may hereafter erect or maintain a dam or dams, in any waters in this Commonwealth, shall immediately, on a written order from the fish commissioners, erect therein such chutes, slopes, fishways or gates as the commissioners may decide necessary, to enable fish to ascend and descend the rivers at all seasons of the year; and any person, company or corporation refusing or neglecting to comply with the provisions of this section, shall forfeit and pay the sum of fifty dollars for every month he or they so neglect, which sum or sums shall be recovered by civil suit and process, in the name of the Commonwealth, and when collected shall be paid into the treasury of the State for the use of the fish commissioners. If, after the lapse of three calendar months, the person, company or corporation owning or maintaining said dam or dams, still neglect or refuse to erect or place the appliances as directed by the fish commissioners, the Board of Fish Commissioners are empowered to enter upon such dam or dams, and erect such slopes, chutes or fishways or gates as they may decide necessary, and the cost thereof shall be charged against the person, company or corporation owning or maintaining such dam or dams, to be recovered by the Board of Fish Commissioners by civil suit and process, in the name of the Commonwealth: Provided, That where, by reason of any dam or dams having been constructed prior to the requirement by law of the placing of chutes, slopes or fishways therein, or for any other reason, the owner or owners of, or person or persons maintaining, such dam or dams cannot be compelled by law to pay the cost of erecting slopes, chutes or fishways, as provided in this section, the cost of erecting such slopes, chutes and fishways by the fish commissioners, as provided in this section, shall be paid by the Commonwealth of Pennsylvania, out of the funds not otherwise appropriated, upon warrants drawn by the Auditor General upon the State Treasurer. The Auditor General to be furnished by said commissioners with an itemized statement of the cost of such construction, which must be approved by him before he shall draw a warrant for the payment of the same:" Act May 29th, 1901, section 13, (P. L. 302, 306).

"From and after the passage of this act, any person, company or corporation owning or operating a raceway, flume or inlet pipe, leading to a water wheel, turbine, pump or canal, shall, immediately upon receipt of a written order from the Board of Fish Commissioners, place and maintain a screen or net at the upper end of such raceway, flume, or inlet pipe, sufficient to prevent fish from entering therein. Any person, company or corporation refusing or neglecting to comply with such order for a period of one month, shall forfeit and pay the sum of fifty dollars, which sum shall be recovered by civil suit and process, in the name of the Commonwealth, and when collected shall be paid in the treasury of the State for the use of the Fish Commissioners. If one month after notification, the person, company or corporation, owning or operating such raceway, flume, or inlet pipe, has not placed such screen or net as may have been directed, the Fish Commissioners are empowered to enter upon such raceway, flume, or inlet pipe, and place such screens or nets as they may decide necessary; and the cost thereof shall be charged against the said person, company or corporation, and if not promptly paid, such cost may be recovered by the Board of Fish Commissioners by civil suit and process, in the name of the Commonwealth:" Act May 29th, 1901, section 14, (P. L. 302, 307).

55. CONSTRUCTION OF DAMS MUST BE APPROVED BY WATER SUPPLY COMMISSION.

"From and after the passage of this act, no person or persons, corporations, county, city, borough, or township shall construct, erect, or build, in or along any public or navigable river, or stream heretofore declared a public highway, within this Commonwealth, any dam, wall, wing-wall, wharf, pier, embankment, abutment, projection, or other obstruction of such river or stream, nor make any addition to any existing dam, wall, wing-wall, wharf, pier, embankment, abutment, projection, or other obstruction of any such river or stream, nor in any manner change or diminish the course, current, or cross-section of any such river or stream, unless and until the said person or persons, corporation, county, city, borough or township shall have submitted to the Water Supply Commission of Pennsylvania complete maps, plans, profiles, and specifications of, and such other information and data as the said Water Supply Commission of Pennsylvania may deem necessary relating thereto, the proposed dam, wall, wing-wall, wharf, pier, embankment, abutment, projection, or other obstruction, or addition thereto, and a majority of the members of the said Water Supply Commission of Pennsylvania shall have approved the same: Provided, however, That the provisions of this act shall not prohibit the making of necessary temporary repairs to existing dams, walls, wing-walls, wharves, piers, abutments, or projections:" Act May 28th, 1907, (P. L. 299).

56. USE OF DAM.

Where a water company is authorized to build a dam, and has done so, it is not ultra vires to lease it to an ice company for a long term of years: McKay v. Pennsylvania Water Co., 6 Dist. 364.

X.

MUNICIPAL RELATIONS.

A. ENTRY UPON STREETS AND HIGHWAYS.

57. CITIES AND BOROUGHS.

A company for the supply of water to the public, or for the supply, storage and transportation of water and water power for commercial and manufacturing purposes is "authorized and empowered by itself, its agents, engineers and workmen, and with its and their tools, carts, wagons, beasts of draught or burden, to enter upon such lands and enclosures, streets, lanes, alleys, roads and highways and bridges, as may be necessary to occupy or to obtain materials for the construction of said works, and to occupy, ditch and lay pipes through the same, and the same from time to time to repair, subject to such regulations in regard to streets, roads, lanes and other highways and impairing the free use thereof as little as possible, and subject to such regulations as the councils of said borough, town, city or district may adopt in regard to grades or for the protection and convenience of public travel over the same:" Act April 29th, 1874, section 34, clause 2, as amended by act May 16th, 1889, (P. L. 226).

58. TOWNSHIPS OF FIRST CLASS.

"No water company, gas company or electric light company shall enter upon or occupy, in any manner whatever, any street or highway within any township of the first class of this Commonwealth, without first making application, in writing, to the proper authorities of such township of the first class, and obtaining its consent or permission, which shall be given by ordinance only, and upon such conditions, stipulations, and regulations as the municipal authorities may deem proper:" Act June 6th, 1907, (P. L. 417).

59. TOWNSHIPS OF SECOND CLASS.

A water company may enter upon and occupy the streets, lanes or highways of a township of the second class subject to reasonable regulations by the township supervisors in regard to grades, or for the protection and convenience of public travel over the same: Bryn Mawr Water Co. v. Lower Merion Township, 4 Dist. 157. A township of the second class has no authority through its supervisors to impose restrictions and conditions on opening of highways for laying pipes: Eastown Township v. Gas and Electric Co., 35 Pa. C. C. 497; 18 Dist. 400.

60. HYDRO-ELECTRIC COMPANIES: CITIES, BOROUGHS AND TOWNSHIPS.

The act authorizing water power companies to develop electric power for commercial and manufacturing purposes, provides that such companies "shall have authority to make, erect and maintain the necessary buildings, machinery and apparatus for developing power and current, and to distribute the same to any place or places with the right to enter upon any public road, street, lane, alley or highway for such purposes; and to alter, inspect and repair its system of distribution: Provided, That no such company shall enter upon any street or alley in any city, borough or township of this Commonwealth, until after the consent to such entry of the councils of the city or borough or supervisors of the township in which such street or alley may be located shall have been obtained:" Act July 2nd, 1895, (P. L. 425).

61. USE OF SIDEWALKS.

Where a water company has the right to occupy a street with its pipes, it may lay them under the sidewalk without subjecting itself to any other liability to the owner of the abutting property than for such damages as may be done in laying the pipes, interrupting access, etc.: Provost v. New Chester Water Co., 162 Pa. 175.

62. EXTENT OF CONTROL BY MUNICIPALITIES.

By the act of June 6th, 1907, (P. L. 417), no entry can be made on any street or highway of a township of the first class by any water company without the consent of the supervisors of such township having first been given by ordinance.

So, also, by the act of July 2nd, 1895, (P. L. 425), no water company generating and distributing electric power shall make any entry upon any street or alley in any city, borough or township without the consent of the councils of the city or borough, or the supervisors of the township. The necessity for such companies, however, obtaining consent exists only where it is intended to distribute electric power or current, and such company with regard to its right to distribute water stands in the same position as any other water company: Forty Fort Borough v. Forty Fort Water Co., 9 Kulp, 241.

In all other cases of the entry upon the streets, alleys or highways of cities, boroughs or townships of the second class there is no provision of law requiring the company to obtain consent, or prohibiting their making such entry until such consent is obtained, the act of May 16th, 1889, (P. L. 226), merely providing that such companies shall have the right to enter upon such streets and highways "subject to such regulation as the councils of such borough, town, city or district may adopt in regard to grades or for the protection and convenience of public travel over the same." It was formerly held by a court of Common Pleas in Lehigh—Coplay Water Co. v. Coplay Borough, 11 Dist. 602, that consent of the municipality was necessary. On the other hand, it was held by another court of common pleas in Forty Fort Borough v. Forty Fort Water Co., 9 Kulp, 241, that such consent is not necessary. It has now, however, been decided by the Supreme Court that such municipalities cannot require water companies to obtain permission to lay pipes in the streets: Dorrance v. Bristol Borough, 224 Pa. 464. But the councils of such city or borough, and the supervisors of such township, have control over water companies in so far as it is necessary to protect the rights of the traveling public and to enforce reasonable police regulation: Dorrance v. Bristol Borough, 224 Pa. 464; Landsdowne Borough v. Springfield Water Co., 16 Super. Ct. 490; Beaver Valley Water Co. v. Conway Borough, 213 Pa. 225.

While, however, it is not necessary for a company to procure the consent of a municipality to its entry on the streets thereof, it is competent for the municipality to require a water company to procure a permit for the purpose of opening the streets to make connections or repairs, and to pay a tax therefor: Landsdowne Borough v. Springfield Water Co., 16 Super. Ct. 490; Beaver Valley Water Co. v. Conway Borough, 213 Pa. 225, Springfield Water Co. v. Borough of Darby, 199 Pa. 400.

Such municipality also has power to levy an annual mileage license tax or fee on pipes of a water company: Kittanning Borough v. Armstrong Water Co. 35 Super. Ct. 174; Kittanning Borough v. Garretts Run Gas Co., 35 Super. Ct. 167; Kittanning Borough v. Consolidated Natural Gas Co. 219 Pa. 250.

In its regulation of a water company such municipality may compel the company to raise or lower its pipes in order to conform to a new grade of a street: Scranton Gas & Water Co. v. Scranton, 214 Pa. 586; In re Kerlin Street, 12 Dist. 467. This same conclusion has also been reached with regard to townships: Bryn Mawr Water Co. v. Lower Merion Township, 4 Dist. 157.

63. REASONABLENESS OF LICENSE FEES.

A borough ordinance maintaining a fee of $2.00 for opening an unpaved street, $6.00 for opening a street paved with Belgian block or macadamized, and $8.00 for opening a street paved with asphalt or granolithic pavement is not unreasonable, and the fees so charged are not so grossly disproportioned to the expense of issuing a permit and the probable expense of proper inspection, regulation and police surveillance as to warrant the court in declaring them unreasonable: Lansdowne Borough v. Springfield Water Co., 16 Super. Ct. 490.

A fee of $3.00 for opening a street is reasonable: Springfield Water Co. v. Borough of Darby, 199 Pa. 400.

Where a water company in repairing its line digs up and re-paves streets and alleys, and police have been engaged to watch for leaks, unfilled ditches and obstructions and to place danger signals where necessary, the charge by a borough of a fee of $30.00 per mile for six miles is not unreasonable, and payment of the tax cannot be avoided because it subsequently appears that it was somewhat in excess of the actual expense of supervision: Kittanning Borough v. Armstrong Water Co., 35 Super. Ct. 174.

It would also deem that an annual license fee of $30.00 per mile for inspection, regulation and police surveillance of the proper line of a water company was not unreasonable: Kittanning Borough v. Consolidated Natural Gas Co., 219 Pa., 250.

B. CONTRACT WITH MUNICIPALITIES.

64. CITIES.

The act governing cities of the second class confers upon such cities the exclusive right to supply the city with water, or, "to make contracts with, and authorize any person, company or association so to do, and to give such person, company or association the privilege of furnishing water, as aforesaid, for any length of time, not exceeding ten years:" Act March 7th, 1901, article XIX., section 3, clause XL., (P. L. 20, 45).

Similarly the act governing cities of the third class confers upon such cities the exclusive right to supply the city with water, or "to make contracts with, and authorize any person, company or association so to do, and to give such person, company or association the privilege of furnishing water, as aforesaid, for any length of time, not exceeding ten years:" Act May 23rd, 1889, article V., section 3, clause XLIII., (P. L. 277, 293).

65. BOROUGHS.

"Councils of boroughs within this Commonwealth are hereby authorized and empowered to receive bids from any and all incorporated water companies, authorized to do business within such municipality, for a supply of water for fire protection and for other municipal purposes, and to contract therefor with such company offering terms which to said council shall seem most advantageous to said borough:" Act May 2nd, 1901, (P. L. 137).

"Every borough of this Commonwealth shall have power and authority to provide a supply of water for the use of the public within such borough, either by erecting and operating water works or by entering into a contract or contracts with one or more persons or corporations authorized to supply water within the limits of said borough, or partly by the erection and operation of water works and partly by entering into a contract or contracts, as aforesaid:" Act May 3rd, 1901, section 1, (P. L. 140).

"No contract for the supply of water, entered into by any borough with any person, persons or corporations, shall in any wise affect or abridge the power of said borough to construct and operate water works as hereinbefore provided, but such power shall remain in full force and effect as though such contract had not been made:" Act May 3rd, 1901, section 2, (P. L. 140).

66. TOWNSHIPS OF FIRST CLASS: FOR FIRE PROTECTION.

In the enumeration of powers conferred upon townships of the first class is the following: "To purchase and maintain engines for the extinguishment of fire, and to make rules and regulations for the management of the same, and to enter into contracts with any person or corporation to supply water for fire protection, for a period not exceeding twenty years: Provided, This right shall not be exclusive as against any other water company, nor as against the right of such municipality to erect, maintain and operate its own water works:" Act April 28th, 1899, section 7, clause 5, (P. L. 104), as amended by Act July 9th, 1901, (P. L. 627).

A water company cannot be compelled by a township of the first class to furnish free fire plugs: Springfield Township v. North Springfield Water Co. 29 Pa. C. C. 616; 20 Mont. 109.

67. TOWNSHIPS OF SECOND CLASS: FOR FIRE PROTECTION.

"The road supervisors of any township of the second class in this Commonwealth are hereby authorized and empowered on the petition of the owners of a majority of the lineal feet frontage along any highway, or portion thereof, in any village within said township, to enter into contract with water companies for the placing of fire hydrants along said highway, for the protection of property from fire:" Act May 25th, 1907, (P. L. 231).

68. EFFECT OF CONTRACT TO SUPPLY WATER TO A MUNICIPALITY.

Cities of the second and third classes are given by the act of March 7th, 1901, (P. L. 45), and May 23rd, 1889, (P. L. 277), respectively, the exclusive right to supply the inhabitants with water, and this right may be exercised either by the erection of their own water works, or by contract with a water company. Where, however, such a city exercises its right by entering into a contract with a water company, it cannot thereafter exercise that right in a different manner by the erection of its own works: White v. City of Meadville, 177 Pa. 643.

This same conclusion was also reached with regard to boroughs: Metzgar v. Borough of Beaver Falls, 178 Pa. 1; Wilson, et al. v. Borough of Rochester, 180 Pa. 509; Nelson v. Warren Borough, 200 Pa. 504; and this is so even when the company failed properly to perform its contract: Troy Water Co. v. Troy Borough, 200 Pa. 453. Nor is the borough allowed to accomplish the same result indirectly by making a contract with a new water company, whose plant it intends to purchase: Welsh v. Borough of Beaver Falls, 186 Pa. 578. Neither can a borough, authorized by its charter to own stock and participate in the management of a water company, by selling its stock and divesting itself of any of the management of the company, acquire the right to make a new contract with another water company: Carlisle Gas & Water Co., et al. v. Carlisle Water Co., et al., 188 Pa. 51.

To prevent the municipality from erecting its own works, however, there must have been a contract. The mere grant of a right to use the streets of a borough is not the making of such a contract: Hastings Water Co. v. Hastings Borough, 216 Pa. 178. The mere supply of water to the residents of a municipality by a water company, not having an exclusive franchise, does not prevent such municipality from building its own works: Centre Hall Water Co. v. Centre Hall Borough, 186 Pa. 74. Nor does a charter requirement to furnish the municipality with free water for fire protection prevent the erection by the municipality of its own works: Boyertown Water Co. v. Boyertown Borough, 200 Pa. 394.

These conclusions represent the law as affecting water companies operating in boroughs prior to the passage of the act of May 3rd, 1901 (P. L. 140), section 2 of which provides: "No contract for the supply of water, entered into by any borough with any person, persons or corporations, shall in any wise affect or abridge the power of said borough to construct and operate water works as hereinbefore provided, but such power shall remain in full force and effect as though such contract had not been made."

Contracts entered into with a borough since May 3rd, 1901, cannot, therefore, deprive the borough of the right at any time to erect its own works, but where the contract was made prior to that date the act does not give the borough the right to erect water works: Potter County Water Co. v. Austin Borough, 206 Pa. 297.

Where, however, a water company lays its pipes in the streets of a borough without permission of the borough, and without any contract with the borough at the time, but afterwards agrees to furnish water for fire purposes alone for a term of years, but without new construction, and without any liability on the part of the company for failure or neglect to provide supply, and thereafter, the borough by change of its charter acquires the right, which it did not theretofore possess, to construct water works of its own, the borough cannot be enjoined from the construction of such works: Dorrance v. Bristol, 224 Pa. 464.

With regard to townships of the first class the act of July 9th, 1901 (P. L. 627), authorizing the supervisors of such townships to contract with water companies for water for fire protection, adds the proviso that, "This right shall not be exclusive as against any other water company, nor as against the right of such municipality to erect, maintain and operate its own water works."

C. PURCHASE OF WORKS BY MUNICIPALITY.

69. PURCHASE AUTHORIZED AFTER TWENTY YEARS.

"It shall be lawful at any time after twenty years from the introduction of water or gas, as the case may be, into any place as aforesaid, for the town, borough, city or district into which the said company shall be located, to become the owners of said works, and the property of said company, by paying therefor the net cost of erecting and maintaining the same, with interest thereon at the rate of ten per centum per annum, deducting from said interest all dividends theretofore declared: Provided, That nothing in this section contained shall authorize a company incorporated under the provisions of this act to construct gas or water works within the limits of any municipality, when gas or water works shall have been constructed by said municipality, without the lawful consent of the corporate authorities thereof:" Act April 29th, 1874, section 34, clause 7.

70. IN CITIES OF THE THIRD CLASS.

"The councils of any city of the third class are hereby authorized and empowered to purchase, for such price as may be agreed upon by the councils of a city and a majority of the stockholders of the company, all the real, personal and mixed estate of any water, gas or electric light company or companies in such city, or adjacent thereto, and thereupon the said city shall possess and exercise all the rights, power, privileges and franchises by law belonging or pertaining to such company or companies:" Act May 23rd, 1889, article XII, section 1, (P. L. 308).

This act would appear to repeal the provisions of clause 7 of section 34 of the act of 1874, in so far as companies formed subsequently to May 23rd, 1889, to supply water in a city of the third class are concerned: White v. City of Meadville, 177 Pa. 643, 654.

71. PURCHASE OF PLANTS OF COMPANIES HAVING EXCLUSIVE FRANCHISES.

"The several cities and boroughs of this Commonwealth, desirous of owning and operating the water works, plants, or system for the supply of water to any such municipality and the inhabitants thereof, which water works, plants, or system is now, or may hereafter be, owned by a private corporation, firm or individual, may petition the court of common pleas of the proper county, setting forth that the said municipality is desirous of owning said water plant or system, owned by such corporation, firm or individual, and that it will be necessary, in order to make payments therefor, to issue bonds, secured by such plant or system of water works, and that therefore a value should be placed upon such water works, plant, or system, including all property, real or personal, used in connection therewith and reasonably necessary for its purposes:" Act May 31, 1907, section 1 (P. L. 355).

"The said court shall thereupon appoint three disinterested civil engineers as appraisers, to value and appraise such plant or system and the property used in connection therewith, and reasonably necessary for its purposes, who shall file their report in the office of the prothonotary of the proper court within three months after their appointment, unless such time be extended by the court." Act May 31, 1907, section 2 (P. L. 355).

"The appraisers so appointed shall have full access to the books and records of the private corporation, firm, or individual owning said water works or system, to inform themselves as to the income and value thereof. They shall have power to administer oaths, and are hereby authorized to hear and consider the testimony of witnesses and other legal proofs. Their report shall be final, if not appealed from within ten days after notice of the filing thereof shall have been served on the mayor or burgess of the city or borough, and upon the corporation, firm, or individual owning the water works. Within said ten days either party may appeal from such appraisement, alleging an under or over valuation of the property thereby, and praying for a hearing before the court; and the said court shall thereupon, upon application of either party, fix a time when said appeal may be heard, of which time at least ten days' notice shall be given to the parties; upon such hearing the court shall have power, after hearing legal proofs and arguments, to increase or lower such appraisement, or otherwise, and modify the same as the facts may warrant, subject, however, to the right of appeal by either party party to the proper appellate court, as in other cases in equity:" Act May 31, 1907, section 3 (P. L. 355).

"After such value is finally determined, the municipality is authorized to buy said water plant at the valuation so fixed and determined; and the said corporation, firm, or individual, owning same, shall, within ten days' notice of such determination, and a request by the municipality so to do, file in said court a paper indicating its consent and election to sell and convey its plant, system, and property so appraised, to the municipality, at the valuation fixed as aforesaid: and, in default whereof, such corporation, firm, or individual shall cease to have any exclusive privilege of supplying said municipality, or the citizens thereof, with water, and said municipality may install or cause to be installed such plant or system as the authorities may deem necessary and expedient for the accommodation of the public:" Act May 31, 1907, section 4 (P. L. 355).

So far as it affects water companies not appearing to have exclusive privileges, the act is not in conflict with the constitution of Pennsylvania or of the United States: Fleetwood Water Co. v. Borough, 1 Berks 69.

Where a water company files a paper disclaiming exclusive privileges and stating that it will not sell its plant to the borough, the court will not appoint appraisers: Catasauqua Borough's Petition, 3 Lehigh 48.

In such case if the borough proceeds to install plant, and issue bonds therefor, the company cannot enjoin it, even though the course of dealings between the company and the borough might have precluded the borough from erecting its own plant if the disclaimer had not been made. Water Co. v. Catasauqua, 3 Leh. 319.

XI.

AMENDMENT OF CHARTER.

A. GENERAL AMENDMENTS.

72 AMENDMENT AUTHORIZED.

"When any corporation, formed for any of the purposes named in the second class of section two of the act to which this is a supplement, or embraced in that class by any of its supplements, and which shall have been or may hereafter be incorporated under the provisions of that act or its supplements, as also any corporation of the second class which has heretofore or may hereafter accept the provisions of said act and the several supplements thereto, and the Constitution of this Commonwealth in the manner provided by law, shall desire to improve, amend or alter the article and conditions of the charter or instrument upon which said corporation is formed and established, it shall and may be lawful for such corporation to apply to the Governor of this Commonwealth for such improvement, amendment or alteration in the manner provided by this act:" Act June 13th, 1883, section 1 (P. L. 122).

73. NOTICE TO BE PUBLISHED.

"The corporation desiring such improvement, amendment or alteration shall give notice of the intention to apply therefor, in two newspapers of general circulation, printed in the county wherein the principal office or place of business of said corporation is located, once a week for three weeks, setting forth briefly the character and objects of the desired improvements, amendments or alterations, and the intention to make application therefor:" Act June 13th, 1883, section 2 (P. L. 122).

As to when publication in German newspapers is required, see Par. 7.

As to publication in legal journals, see Par. 7.

74. PROCEEDINGS TO AMEND.

"The said corporation shall prepare a certificate under its corporate seal, setting forth the charter and objects of the proposed improvement, amendment or alteration of their charter or the instrument upon which the said corporation is formed or established; also, that all reports required by the Auditor General of the Commonwealth have been filed, and all taxes due the Commonwealth of Pennsylvania have been paid; acknowledged by the president and secretary of said corporation, and before the recorder of deeds of the county wherein such corporation has its principal office or place of business, which certificate, together with proof of publication of notice, as provided in section two of the supplement to an act of which this is an amendment, shall then be produced to the Governor of the Commonwealth, who shall examine the same, and if he find it to be in proper form, and that such improvements, amendments or alterations are or will be lawful and beneficial, and not injurious to the community, and are in accord with the purpose of the charter, and that all reports required by the Auditor General of the Commonwealth have been duly filed, and that all taxes due the Commonwealth of Pennsylvania have been paid, he shall approve thereof and endorse his approval thereon, and direct letters patent to issue in the usual form, reciting the said improvements, amendments or alterations, and the said certificate shall then be recorded in the office of the Secretary of the Commonwealth, and with all its endorsements shall then be recorded in the office for the recording of deeds in and for the proper county where the principal office or place of business of said corporation is located, and from thenceforth the same shall be deemed and taken to be a part of the charter or instrument upon which said corporation was formed or established to all intents and purposes, as if the same has originally been made a part thereof:" Act June 13th, 1883, section 3, (P. L. 122), as amended by Act March 31st, 1905 (P. L. 94).

75. LIMITATIONS OF AMENDMENTS.

"Nothing in this act contained shall be construed to repeal or authorize the repeal of any of the requirements or restrictions of the said act of April twenty-ninth, one thousand eight hundred and seventy-four and its supplements, nor to dispense with any of the provisions of the said act, nor to authorize the right of eminent domain to be given to any corporation by amendment of its charter, nor to permit any change in the objects and purposes of such corporation as shown by its original charter:" Act June 13th, 1883, section 4 (P. L. 123).

76. EXTENSION OF TERRITORY.

Section 3 of the act of June 13th, 1883, as amended by the act of March 31st, 1905, contains this proviso: "That nothing herein contained shall authorize the amendment, alteration, improvement or extension of the charter of any gas or water company so as to interfere with or cover territory previously occupied by any other gas or water company."

The territorial limits of a water company may, however, be extended under this act if such extension does not interfere or cover the territory previously occupied by another company: In re Sayre Water Co., Op. Atty. Gen., 1895-96, p. 398; and if the extension is not made beyond the limits of a single municipality: In re Monongahela Water Co., 9 Pa. C. C. 57.

77. CHANGE OF NAME.

Prior to the act of June 13th, 1883, the name of a corporation was changed by the courts of common pleas. Subsequently to the passage of that act, however, it was held that the name of a corporation may be changed under the act of June 13th, 1883, the right of the courts of common pleas to change the name being taken away thereby: Fort Pitt Building and Loan Ass. v. Model Plan Building and Loan Ass., 159 Pa. 308; In re Wetheral Steel Casting Co., 5 Pa. C. C. 337; In re Excelsior Oil Co., 3 Pa. C. C. 184. The method of changing the name of a corporation is now, however, provided for by a separate act:

"It shall be lawful for any corporation of this Commonwealth, heretofore or hereafter created by any general or special law, to change its corporate title by resolution of its Board of Directors, adopted by a two-thirds vote thereof, approved at any annual meeting, or special meeting duly called, of the stockholders by a two-thirds vote thereof. Upon such approval by the stock holders, it shall be the duty of the President of said corporation to file in the office of the Secretary of the Commonwealth a certificate, under the seal of the company, setting forth the resolution adopted by the Board of Directors and approved by the stockholders, the date of the adoption of such resolution by the Board of Directors and the date of its approval by the stockholders, the date of the original incorporation of the company, the act of assembly under which the said corporation was created, the name under which the said corporation was originally incorporated and all subsequent changes therein, and the name which the corporation desires to adopt. The Secretary of the Commonwealth shall examine the records in his office, and, if he finds that the name desired by said corporation does not conflict with the name of any corporation appearing upon said records, he shall require the said certificate to be recorded, and shall issue to the said corporation a certificate, under his hand and the seal of his office, granting to said corporation the use of said new corporate title. The Secretary of the Commonwealth shall, upon the issuing of any such certificate, require the same to be recorded in a book kept for that purpose, and certify to said change in the corporate title to the Auditor General of this Commonwealth: Provided, That any corporation, required to record the original certificate of incorporation in the office for the recording of deeds, shall, before being entitled to use the new corporate title, record in the office for the recording of deeds, where the original certificate of incorporation was recorded, the said certificate granted by the Secretary of the Commonwealth authorizing the use of the new corporate title: Provided, also, That this act shall not apply to corporations for profit:" Act April 22nd, 1903 (P. L. 251).

B. SPECIAL AMENDMENTS.

78. EXTENSION OF TERRITORY OF COMPANIES FOR SUPPLY OF WATER TO THE PUBLIC.

"Any company heretofore incorporated or hereafter to be incorporated for the purpose of supplying water to the public in any town, borough or city, upon the written request of the owners of a majority of the lots of land in any tract or district adjacent to such town, borough or city, have power and authority to extend its plant or works for the supply of water into such tract or district, with such rights and subject to such duties within such tract or districts as may have been conferred and imposed by its charter, within the town, borough or city therein designated: Provided, That such written request shall contain a description of such tract or district, and be recorded in the office of the recorder of deeds in and for the proper county, and thereupon a certified copy of the record of such proceedings as appears of record in the office of the recorder of deeds shall forthwith be transmitted to and filed in the office of the Secretary of the Commonwealth." Act May 21st, 1901 (P. L. 270).

79. CHANGE OF SOURCE OF SUPPLY.

"That any corporation for the supply of water to the public, or for the supply, storage and transportation of water and water power for commercial and manufacturing purposes; or any other water or water power companies formed or created subsequently to the passage of this act, or subject to its provisions, requiring a new or additional source of supply for its water or water power, may make application therefor by filing in the office of the Secretary of the Commonwealth a certified copy of a resolution of its stockholders, under the seal of said corporation—a duplicate of which shall also be filed in the office of the Water Supply Commission of Pennsylvania—setting forth the necessity for such new or additional source of supply, and the river, stream or other body of water, and, as near as may be, the points on said river, stream or other body of water, between which it is desired to take or use water or water power; and if the application shall be approved by a majority of the members of The Water Supply Commission of Pennsylvania, it shall then be produced to the Governor, for his approval or disapproval;

and if he shall approve the same, the Secretary of the Commonwealth shall issue a certificate that such new or additonal source of supply has been duly authorized and the said certificate shall then be recorded in the office of the Secretary of the Commonwealth, and in the office for the recording of deeds in and for the county in which said river, stream or other body of water, or the portion thereof so authorized to be used, is situated, and shall thenceforth be deemed and taken to be part of the charter or instrument on which said corporation was formed or created, to all intents or purposes as if the same had originally been a part thereof: Provided, That the rights or privileges granted under or by the provisions of this act shall in no wise prevent or prejudice the occupation of such source of supply of water by the State, for the purpose of promoting any system of inland navigation; And provided, further, That nothing in this act shall be construed to relieve any water company from complying with the requirements of the act of April twenty-second, one thousand nine hundred and five, entitled 'An act to protect the purity of the waters of the State, for the protection of the public health:" Act June 7th, 1907, section 4 (P. L. 455).

XII.

AMOUNT OF CAPITAL STOCK AND INDEBTEDNESS.

A. CAPITAL STOCK.

80. AMOUNT AUTHORIZED.

"The capital stock of every such corporation that has or requires capital stock, shall consist of not more than one million dollars, except companies incorporated for the purpose of supplying the public with water, whose capital stock shall not exceed two million dollars, and shall be divided into shares of not more than one hundred dollars each; and all subscriptions to the capital stock shall be paid in such installments and at such times as the directors may require, and if default be made in any payment the person or persons in default shall be liable to pay, in addition to the amount so called for and unpaid, at the rate of one-half of one per centum per month for the delay of such payment, and the directors may cause suit to be brought for the recovery of the amount due, together with a penalty of one-half of one per centum per month, as aforesaid, or the directors may cause the stock to be sold in the manner provided in clause two of section thirty-nine of this act; and no stockholder shall be entitled to vote at any election, or at any meeting of the stockholders, on whose share or shares any installments or arrearages may have been due and unpaid for the period of thirty days immediately preceding such election or meeting. The shares of the capital stock of every such company may be transferred on the books of the company, in person or by attorney, subject to such regulations as the by-laws may prescribe; but the provisions of this section shall not apply to corporations in which by this act different and other rules and provisions are enacted for their regulation and government:" Act April 29th, 1874, section 11, as amended by Act of May 9th, 1889 (P. L. 180).

81. CAPITAL STOCK MAY BE INCREASED TO ANY AMOUNT.

"The capital stock or indebtedness, or both, of any corporation created by general or special law may, with the consent of the persons or bodies corporate holding the larger amount in value of its stock, be increased to such an amount in the aggregate of each, without regard to the amount of the other, and regardless of any limitation upon the amount of either, prescribed in any general or special law regulating any such corporation, as it shall deem necessary to accomplish and carry on and enlarge the business and purposes of such corporation. Such increase of either may be made at once or from time to time, as the majority in interest of the stockholders shall determine, as aforesaid; and upon the authorizing of any such increase of indebtedness by the stockholders of such corporation, in the manner hereinafter provided, it shall be lawful for such corporation to secure the payment of the principal or interest, or both, of all or any part of such indebtedness, by mortgage, deed of trust, or other pledge or conveyance, by way of security, of all or any part of its real and personal property, rights, privileges, and franchises, and in such manner and upon such terms as its board of directors may determine:" Act February 9th, 1901 (P. L. 3), as amended by Act April 22nd, 1905 (P. L. 280).

82 PROCCEDINGS TO INCREASE CAPITAL STOCK.

"Any corporation desirous of increasing its capital stock or indebtedness, or both, as authorized by this act, shall by resolution of its board of directors, adopted by a majority of the entire number thereof, declare such purpose, and thereupon by resolution, similarly adopted, direct that the question of such proposed increase shall be submitted to the stockholders of such corporation for their consent; either

"(A) At any prescribed regular annual meeting or adjournment thereof, the notice whereof, stating inter alia that such subject would be considered thereat, shall have been published once a week for sixty days prior to such meeting in at least one newspaper published in the county, city or borough wherein the chief office or place of business of the corporation is situate. At said meeting the question shall be submitted to the stockholders, and it shall be the duty of the president and secretary of said meeting, by such agencies or methods as to them may seem meet, to ascertain whether the persons and bodies corporate holding the larger amount in value of the stock of said corporation shall have consented to such increase and upon being so satisfied to certify in duplicate the fact, under oath duly administered: Provided, That should a stock vote be duly demanded at said meeting, it shall be the duty of the president and secretary, in ascertainment of the fact of the consent, to cause such vote to be taken at the same time and place, by the same persons and in the same manner, as the vote for directors or managers of such corporation shall be taken, or,

"(B) At a special meeting of the stockholders, notice of the time, place and object of which shall have been published once a week for sixty days prior to said meeting in at least one newspaper published in the county, city or borough wherein such office or place of business is situated. At such meeting thus called, or any adjournment thereof, an election of the stockholders shall be taken for or against such increase which shall be conducted by three judges, stockholders of such corporation, appointed by the board of directors to hold said election, and if one or more of said judges be absent the judge or judges present shall appoint a judge or judges who shall act in the place of the judge or judges absent; and said judges shall respectively take and subscribe an oath or affirmation before an officer authorized by law to administer the same, well and truly and according to law to conduct such election to the best of their ability; and the said judges shall decide upon the qualifications of voters, and when the election is closed count the number of shares voted for and against such increase, and declare whether the persons and bodies corporate holding the larger amount of the stock of such corporation have consented to such an increase or refused to consent thereto, and shall make out duplicate returns of said election, stating the number of shares of stock that voted for such increase and the number that voted against such increase, and subscribe and deliver the same to one of the chief officers of said company. Each ballot shall have endorsed thereon the number of shares thereby represented but no share or shares transferred within sixty days shall entitle the holder or holders thereof to vote at such election or meeting; nor shall any proxy be received, or entitle the holder to vote, unless the same shall bear date and have been executed within four months (two months, Act March 5th, 1903, P. L. 14), next preceding such election or meeting; and it shall be the duty of such corporation to furnish the judges, at said meeting, with a statement of the amount of its capital stock, with the names of persons or bodies corporate holding the same, and number of shares by each respectively held, which statement shall be signed by one of the chief officers of such corporation, with an affidavit thereto annexed that the same is true and correct to the best of his knowledge and belief:" Act February 9th, 1901, section 2, (P. L. 3).

As to when publication of notice in German newspapers is required, see Par. 7.

As to publication in legal journals, see Par. 7.

"It shall be the duty of such corporation, if consent is given to such increase, to file in the office of the Secretary of the Commonwealth, within thirty days after such election, one of the copies of the certificates of the president and secretary of the annual meeting, or one of the copies of the return of such election at the special meeting hereinbefore provided for, with a copy of the resolution and notice calling the same thereto annexed; and thereafter the increase may be made at such time or times as shall be determined by the directors. Upon the actual increase of the capital stock or indebtedness of such corporation, made pursuant thereto, it shall be the duty of the president or treasurer of such corporation, within thirty days thereafter, to make a return to the Secretary of the Commonwealth, under oath, of the amount of such increase actually made, and concurrently therewith such corporation shall pay to the State Treasurer, for the use of the Commonwealth, such bonus on the actual increase shown by said return as shall then be prescribed by law. In case of neglect or omission to make said return, such corporation shall be subject to a penalty of five thousand dollars, in addition to the bonus, which penalty shall be collected on an account settled by the Auditor General and State Treasurer as accounts for taxes due the Commonwealth are settled and collected; and the Secretary of the Commonwealth shall cause said return to be recorded in a book for that purpose and furnish a copy of the same to the Auditor General:" Act February 9th, 1901, section 3, (P. L. 5).

Capital stock cannot be increased in an agreement of merger and consolidation over the combined capital stocks of the merging and consolidating companies: In re Bellevue & Perrysville Street Railway Co. and Howard & East Street Railway Co., Op. Atty. Gen., 1903-04, p. 42; Bellevue & Derry Street Railway Co., and Bradenville & Derry Street Railway Co., Op. Atty. Gen., 1903-04, p. 56; Stroudsburg, etc., Telephone Co. and Monroe Telephone Co.'s Consolidation, 33 Pa. C. C. 321; 10 Dauph. 70; 16 Dist. 601.

83. WAIVER OF NOTICE OF ELECTION TO INCREASE CAPITAL STOCK.

The constitutional provision that sixty days notice of a meeting for the election upon a proposed increase of capital stock shall be given, may be waived: In re Bellefonte & Buffalo Run Railroad Co., 2 Chest. Co. 128; Op. Atty. Gen., 1895-96, 387; but the holding of the meeting itself cannot be waived: In re Tally-on-Top Salesbook Co., 17 Pa. C. C. 199.

84. CAPITAL STOCK MAY BE DECREASED.

"The capital stock of any corporation created by general or special law may be reduced from time to time by the consent of the persons or bodies corporate holding the larger amount in value of the stock of such corporation, provided that such reductions shall not be below the minimum amount of capital stock required by law for the formation of corporations formed for similar purposes;" Act June 8th, 1893, section 1, (P. L. 351), as amended by Act April 22nd, 1905, (P. L. 264).

85. PROCEEDINGS TO DECREASE CAPITAL STOCK.

"Any corporation desirous of reducing its capital stock as provided by this act shall, by a resolution of its board of directors, call a meeting of its stockholders therefor, which meeting shall be held in its chief office or place of business in this Commonwealth, and notice of the time, place and object of said meeting shall be published once a week for sixty days prior to such meeting in at least one newspaper published in the county, city or borough wherein such office or place of business is situate:" Act June 8th, 1893, section 2, (P. L. 352).

As to when publication of notice in German newspapers is required, see Par. 7.

As to publication of notice in legal journals, see Par. 7.

At the meeting called pursuant to the second section of this act, an election of the stockholders of such corporation shall be taken for or against such reduction, which shall be conducted by three judges, stockholders of said corporation, appointed by the board of directors to hold said election, and if one or more of said judges be absent, the judge or judges present shall appoint a judge or judges who shall act in the place of the judge or judges absent, and who shall respectively take and subscribe an oath or affirmation before an officer authorized by law to administer the same well and truly and according to law, to conduct such elections to the best of their ability, and the said judges shall decide upon the qualification of voters, and when the election is closed, count the number of shares voted for and against such reduction, and declare whether the persons or bodies corporate holding the larger amount of the stock of such corporation have consented to such reduction or refused to consent thereto, and shall make out duplicate returns of said election, stating the number of shares of stock that voted for such reduction and the number that voted against such reduction, and subscribe and deliver the same to one of the chief officers of said company:" Act June 8th, 1893, section 3 (P. L. 352).

"Each ballot shall have endorsed thereon the number of shares thereby represented, but no share or shares transferred within sixty days shall entitle the holder or holders thereof to vote at such election or meeting, nor shall any proxy be received or entitle the holder to vote unless the same shall bear date and have been executed within three months" (two months, Act March 5th, 1903, P. L. 14), "next preceding such election or meeting, and it shall be the duty of such corporation to furnish the judges at said meeting with a statement of the amount of its capital stock with the names of persons or bodies corporate holding the same, and number of shares by each respectively held, which statement shall be signed by one of the chief officers of such corporation with an affidavit thereto annexed that the same is true and correct to the best of his knowledge and belief:" Act June 8th, 1893, section 4 (P. L. 352).

"It shall be the duty of such corporation, if consent is given to such reduction, to file in the office of the Secretary of the Commonwealth, within thirty days after such election or meeting, one of the copies of the return of such election provided for by the third section of this act, with a copy of the resolution and notice calling the same thereto annexed, and upon the reduction of the capital stock of such corporation made pursuant thereto, it shall be the duty of the president or treasurer of such corporation, within thirty days thereafter, to make a return to the Secretary of the Commonwealth, under oath, of the amount of such reduction, and in case of neglect or omission so to do, such corporation shall be subject to a penalty of five thousand dollars, which penalty shall be collected on an account settled by the Auditor General and State Treasurer as accounts for taxes due the Commonwealth are settled and collected, and the Secretary of the Commonwealth shall cause said return to be recorded in a book kept for that purpose and furnish a certified copy of the same to the Auditor General:" Act June 8th, 1893, section 5, (P. L. 352).

B. INDEBTEDNESS.

86. NO IMPLIED POWER TO CREATE AN INDEBTEDNESS SECURED BY MORTGAGE EXISTS.

Companies exercising public franchises, including water companies, have no implied power to mortgage their franchises, nor the property essential to the exercise thereof, and they can consequently not do so without express statutory authority: Steiner's Appeal, 27 Pa. 313; Wood v. Bedford & Bridgeport Railroad Co., 8 Phila. 94. They may, however, mortgage such property as is not essential to the enjoyment of their public franchises: Plymouth Railroad Co. v. Colwell, 39 Pa. 337.

87. AUTHORITY TO MORTGAGE.

"It shall be lawful for all corporations to borrow money or to secure any indebtedness created by them, by issuing bonds, with or without coupon attached thereto, and to secure the same by a mortgage or mortgages to be given and executed to a trustee or trustees, for the use of the bondholders, upon their real estate and machinery, or on their real estate alone, to an amount not exceeding one-half of the capital stock of the corporation paid in, and at a rate of interest not exceeding six per centum: Provided, That it shall be lawful for such corporations as belong to the classes named in clauses four, five, six, seven, nine and eleven of corporations for profit, of the second class, as set forth in section two of the act of which this is a supplement, and also for such corporations as belong to the class named in clause twenty-four, section two, of the act of assembly approved April seventeenth, one thousand eight hundred and seventy-six, so to borrow money and so to secure the payment of the same, by a mortgage or mortgages on its property and franchises, to the amount not exceeding double the amount of the capital stock of the corporation actually paid in, and at a rate of interest not exceeding six per centum, and this section shall not be construed to prevent mortgages for a greater amount and at a higher rate of interest, where the power to make the same is expressly given by the terms of this statute to certain classes of corporations, or is contained in the charter of any private corporations accepting this act, or in the statutes under which certain other classes thereof are by the provisions of this statute to be controlled, governed and managed:" Act April 29th, 1874, section 13, as amended by Act May 21st, 1889, (P. L. 257).

88. ADDITIONAL AUTHORITY FOR WATER POWER COMPANIES.

The act of July 2nd, 1895, (P. L. 423), provides that corporations for the supply, storage or transportation of water and water power for commercial and manufacturing purposes be and they are authorized and empowered "to mortgage their said property, real, personal and mixed and franchises to any person or corporation of this state or elsewhere, either directly or as trustee, to secure the payment of such indebtedness as may be incurred or created for the purpose of constructing and erecting the said works, or as a guaranty for the faithful performance of contracts and covenants on the part of said water and water power company to be performed, including the guaranty of the payment of the bonds and interest thereon of any other corporation party to such contract."

89. INDEBTEDNESS MAY BE INCREASED TO ANY AMOUNT.

"The capital stock or indebtedness, or both, of any corporation created by general or special law may, with the consent of the persons or bodies corporate holding the larger amount in value of its stock, be increased to such an amount in the aggregate of each, without regard to the amount of the other, and regardless of any limitation upon the amount of either, prescribed in any general or special law regulating any such corporation, as it shall deem necessary to accomplish and carry on and enlarge the business and purposes of such corporation. Such increase of either may be made at once or from time to time, as the majority in interest of the stockholders shall determine, as aforesaid; and upon the authorizing of any such increase of indebtedness by the stockholders of such corporation, in the manner hereinafter provided, it shall be lawful for such corporation to secure the payment of the principal or interest, or both, of all or any part of such indebtedness, by mortgage, deed of trust, or either pledge or conveyance, by way of security, of all or any part of its real and personal property, rights, privileges, and franchises, and in such manner and upon such terms as its board of directors may determine:" Act February 9th, 1901, (P. L. 3), as amended by Act April 22nd, 1905, (P. L. 280).

90. PROCEEDINGS TO INCREASE INDEBTEDNESS.

The proceedings to increase indebtedness are identical with the proceedings to increase capital stock, as outlined in sections 2, 3, 4, and 5 of the act of February 9th, 1901, (P. L. 3). (See Par. 76).

91. WAIVER OF NOTICE OF ELECTION TO INCREASE INDEBTEDNESS.

While it has been held that the sixty days notice of a meeting for the election to increase capital stock may be waived, it has been held that the notice of the meeting for an election to increase indebtedness may not be so waived: Mass v. Poughkeepsie & N. E. R. R. Co., 1 Mona. 497.

XIII.

MERGER AND CONSOLIDATION, SALE, LEASE AND OWNERSHIP OF STOCK.

A. MERGER AND CONSOLIDATION.

92. MERGER AND CONSOLIDATION UNDER ACT OF 1901.

"It shall be lawful for any corporation now or hereafter organized under, or accepting the provisions of, the act, entitled, 'An act to provide for the incorporation and regulation of certain corporations,' approved April twenty-ninth, one thousand eight hundred and seventy-four, or of the supplements thereto, or of any other Act of Assembly authorizing the formation of corporations, to buy and own the capital stock of, and to merge its corporate rights, powers and privileges with and into those of, any other corporation, so that by virtue of the act such corporations may consolidate, and so that all the property, rights, franchises and privileges then by law vested in either of such corporations, so merged, shall be transferred to and vested in the corporation with which such merger shall be made:" Act May 29th, 1901, section 1, (P. L. 349).

93. AGREEMENT CANNOT EXTEND TERRITORIAL LIMITS OF EXCLUSIVE FRANCHISE.

The act of May 29th, 1901, (P. L. 349), authorizing the merger and consolidation, further provides that "nothing in this act contained shall extend or enlarge beyond its former territorial limits the exclusive franchise of any gas or water company."

94. AGREEMENT CANNOT INCREASE CAPITAL STOCK.

An agreement of consolidation and merger, under the provisions of the act of May 29th, 1901, (P. L. 349), cannot increase capital stock of a new company over the combined capital stocks of the underlying companies: In re Bellevue & Perrysville Street Railway Co. and Howard & East Street Railway Co., Op. Atty. Gen., 1903-04, p. 42; Bellevue & Derry Street Railway Co. and Bradenville & Derry Street Railway Co., Op. Atty. Gen. 1903-04, p. 56; Stroudsburg, etc., Telephone Co. and Monroe Telephone Co.'s Consolidation, 33 Pa. C. C. 321; 10 Dauph. 70, 16 Dist. 601.

95. PROCCEDINGS TO MERGER AND CONSOLIDATE.

"Said merger or consolidation shall be made under the conditions, provisions and restrictions, and with the powers herein set forth, to wit:

"1. The directors of each corporation may enter into a joint agreement, under the corporate seal of each corporation, for the merger and consolidation of said corporations; prescribing the terms and conditions thereof, the mode of carrying the same into effect, the name of the new corporation, the number and names of the directors and other officers thereof, and who shall be the first directors and officers and their places of residence, the number of shares of the capital stock, the amount or par value of each share, and the manner of converting the capital stock of each of said corporations into the stock of the new corporation, and how and when directors and officers shall be chosen, with such other details as they shall deem necessary to perfect the said consolidation and merger; but said agreement shall not be effective unless the same shall be approved by the stockholders of said corporations, in the manner hereinafter provided.

"II. Said agreement shall be submitted to the stockholders of each of said corporations, at separate special meetings, of the time, place and object of which respective meetings due notice shall be given by publication, once a week for two successive weeks before said respective meetings, in at least one newspaper in the county or each of the counties in which the principal offices of said respective corporations shall be situate; and at said meetings the said agreement of the directors shall be considered, and a vote of the stockholders in person or by proxy shall be taken, by ballot, for the adoption or rejection of the same, each share of stock entitling the holder thereof to one vote; and if a majority in amount of the entire capital stock of each of said corporations shall vote in favor of said agreement, merger and consolidation, then that fact shall be certified by the secretary of each corporation, under the seal thereof, and said certificates, together with the said agreement or a copy thereof, shall be filed in the office of the Secretary of the Commonwealth, whereupon the said agreement shall be deemed and taken to be the act of consolidation of said corporations:" Act May 29th, 1901, (P. L. 349).

It is doubtful if the publication of notice for two weeks can be waived: In re Bellevue & Perryville Street Railway Co., 32 Pa. C. C. 243; 15 Dist. 510; 8 Dauph. 281.

As to when publication of notice in German newspapers is required, see Par. 7.

As to publication of notice in legal journals, see Par. 7.

96. AGREEMENT MUST BE APPROVED BY WATER SUPPLY COMMISSION.

"From and after the passage of this act, no agreement for the merger and consolidation of two or more corporations heretofore or hereafter formed for the supply of water to the public, or for the supply, storage, and transportation of water and water power for commercial and manufacturing purposes, or of any other water or water power companies, shall be approved by the Governor, nor shall letters patent be issued creating and erecting the parties to said agreement into a new corporation, unless said agreement is first submitted to, and has received the approval of, a majority of the members of the Water Supply Commission of Pennsylvania:" Act June 7th, 1907, section 2, (P. L. 455).

97. AGREEMENT MUST DESIGNATE FUTURE SOURCE OF SUPPLY.

The above quoted act of June 7th, 1907, (P. L. 455), further provides that such agreement shall not be approved by the Governor "unless said agreement shall designate the river, stream or other body of water from which it is proposed to take or use water or water power thereafter, and also, as near as may be, the points on said river, stream or other body of water, between which said water or water power is proposed to be taken or used; nor unless said agreement shall stipulate that the right heretofore existing in any of the corporations, parties to said agreement, to take or use water or water power from any river, stream or other body of water, or portions thereof, not so designated, shall be and are thereby forfeited and surrendered, and shall revert to this Commonwealth."

98. RIGHTS OF EMINENT DOMAIN OVER WATER FORFEITED UPON CONSOLIDATION AND MERGER.

"No such agreement of merger and consolidation shall be approved by the said Water Supply Commission of Pennsylvania, nor by the Governor, until each of the corporations, parties thereto, shall have filed in the office of The Water Supply Commission of Pennsylvania, a written acceptance, under the seal of said corporation and authorized by a majority of the stockholders thereof, both of this act and of the act approved April thirteenth, one thousand nine hundred and five, entitled 'An act providing that the right of eminent domain, as respects the appropriation of streams, rivers, or waters, or the land covered thereby, shall not be exercised by water companies incorporated under law,' agreeing to be subject to and bound by the provisions of both of said acts, with like effect as if said corporations had been formed subsequently to the passage of both of said acts; and shall, also, have filed a certified copy of said acceptance in the office of the Secretary of the Commonwealth:" Act June 7th, 1907, section 2, (P. L. 455).

99. COMPLETION OF MERGER AND CONSOLIDATION.

"Upon the filing of said certificates and agreement, or copy of agreement, in the office of the Secretary of the Commonwealth, the said merger shall be deemed to have taken place, and the said corporations to be one corporation under the name adopted in and by said agreement, possessing all the rights, privileges and franchises theretofore vested in each of them, and all the estate and property, real and personal, and the rights of action of each of said corporations, shall be deemed and taken to be transferred to and vested in the said new corporation without any further act or deed: Provided, That all rights of creditors and all liens upon the property of each of said corporations shall continue unimpaired, and the respective constituent corporations may be deemed to be in existence to preserve the same; and all debts, duties and liabilities of each of said constituent corporations shall thenceforth attach to the said new corporation, and may be enforced against it to the same extent and by the same process as if said debts, duties and liabilities had been contracted by it. But such merger and consolidation shall not be complete, and no such consolidated corporation shall do any business of any kind, until it shall have first obtained from the Governor of the Commonwealth new Letters Patent, and shall have paid to the State Treasurer a bonus of one-third of one per centum on all its corporate stock in excess of the amount of the capital stock of the several corporations so consolidating, upon which the bonus required by law had been theretofore paid: And provided further, that new letters patent of such consolidated corporation shall not be issued by the Governor of the Commonwealth until each and every corporation, entering and forming the consolidated corporation, shall have filed with the Secretary of the Commonwealth a certificate from the Auditor General of the Commonwealth, setting forth that all reports required by the Auditor General of the Commonwealth have been duly filed, and that all taxes due the Commonwealth of Pennsylvania have been paid:" Act May 29th, 1901, section 3, (P. L. 349), as amended by Act March 31st, 1905, (P. L. 96).

"A certified copy of said certificate and agreement or copy of agreement, so to be filed in the office of the Secretary of the Commonwealth, shall be evidence of the lawful holding and action of such meetings, and of the merger and consolidation of said corporations:" Act May 29th, 1901, section 4, (P. L. 349).

The agreement of consolidation and merger need not be recorded in the office of the Recorder of Deeds: Keller v. Water Co., 34 Super. Ct. 301.

100. REMEDY FOR DISSENTING STOCKHOLDERS.

"If any stockholder or stockholders of any corporation which shall become a party to an agreement of merger and consolidation hereunder, shall be dissatisfied with or object to such consolidation, and shall have voted against the same at the stockholders' meeting, it shall and may be lawful for any such stockholder or stockholders, within thirty days after the adoption of said agreement of merger and consolidation by the stockholders as herein provided, and upon reasonable notice to said corporation, to apply by petition to any court of common pleas of the county in which the chief office of such corporation may be situate, or to a judge of said court in vacation, if no such court sits during said period, to appoint three disinterested persons to estimate and appraise the damages, if any, done to such stockholder or stockholders by said consolidation. Upon such petition, it shall be the duty of said court, or judge, to make such appointment; and the award of the persons so appointed, or of a majority of them, when confirmed by the said court, shall be final and conclusive; and the persons so appointed shall also appraise the share or shares of said stockholders in the said corporation, at the full market value thereof, without regard to any appreciation or depreciation in consequence of the said consolidation, which appraisement, when confirmed by the said court, shall be final and conclusive; and the said corporation may, at its election, either pay to the said stockholder or stockholders the amount of damages so found and awarded, if any, or the value of the stock so ascertained; and upon the payment of the value of the stock as aforesaid, the said stockholder or stockholders shall transfer the stock so held by them to the said corporation, to be disposed of by the directors thereof or to be retained for the benefit of the other stockholders; and in case the value of said stock, as aforesaid, shall not be so paid within thirty days after the said award shall have been confirmed by said court, the damages so found and confirmed shall be a judgment against said corporation, and may be collected as other judgments in said court are by law recoverable:" Act May 29th, 1901, section 5, (P. L. 349).

Where a dissenting stockholder has not voted against the agreement of merger and consolidation his remedy is by bill in equity: Barnett v. Philadelphia Market Co., 218 Pa. 649.

Where a dissenting stockholder has voted against the agreement of merger and consolidation he is not obliged to proceed under Section 5 of the Act of May 29th, 1901, but may proceed by bill in equity: Barnett v. Philadelphia Market Co., 218 Pa. 649.

101. WHAT COMPANIES MAY MERGE AND CONSOLIDATE.

The act of May 29th, 1901, (P. L. 349), authorizing the merger and consolidation of corporations, is general in its terms, and would seem from its wording to authorize the merger and consolidation of any corporation with any other corporation of whatever kind. It was held by Governor Pennypacker, however, in re Hummelstown Water Co. and Hummelstown Electric Light, Heat and Power Co., 15 Dist. 532, that this was not the proper construction of the act, but that it was intended to apply only to corporations engaged in the same or a similar kind of business, and that, therefore, a water company could not be merged and consolidated with an electric light, heat and power company. It would seem, however, that water companies, although of different classes, may merge and consolidate with one another, because engaged in the same general or a similar kind of business. Thus, it has been held that under the act a company for the manufacture and supply of gas for light, one for the manufacture and supply of gas for fuel, and one for the supply of light by means of electricity, may merge and consolidate. In this case the Supreme Court held that the corporations could merge and consolidate their "rights, privileges, and franchises, which are alike in their general features, and authorized to be exercised by the same general law, in one body politic by a different name, but for the same purposes, in the same territorial limits:" Motter v. Kennett Gas Light Co., et al., 212 Pa. 613.

102. MERGER AND CONSOLIDATION UNDER ACT OF 1909.

"It shall be lawful for any corporation, now or hereafter organized under the provisions of any general or special act of Assembly, authorizing the formation of any corporation or corporations, to merge its corporate rights, franchises, powers, and privileges with and into those of any other corporation or corporations transacting the same or a similar line of business, so that by virtue of this act such corporations may consolidate, and so that all the property, rights, franchises, and privileges then by law vested in either of such corporations, so merged, shall be transferred to and vested in the corporation into which such merger shall be made:" Act May 3rd, 1909, section 1, (P. L. 408).

103. AGREEMENT CANNOT EXTEND TERRITORIAL LIMITS OF EXCLUSIVE FRANCHISE.

The act of May 3rd, 1909, (P. L. 408), authorizing the merger and consolidation, further provides that "nothing in this act contained shall extend or enlarge beyond its former territorial limits the exclusive franchise of any gas or water company."

104. PROCEEDINGS TO MERGE AND CONSOLIDATE.

"Said merger or consolidation shall be made under the conditions, provisions, and restrictions, and with the powers, herein set forth; to wit:

"I. The directors of each corporation shall enter into a joint agreement, under the corporate seal of each corporation, for the merger and consolidation of said corporations: prescribing the terms and conditions thereof, the mode of carrying the same into effect, the name of the new corporation, the number and names of the directors and other officers thereof, and who shall be the first directors and officers, and their places of residence, the number of shares of the capital stock, the amount or par value of each share and the manner of converting the capital stock of each of said corporations into the stock of the new corporation, and how and when directors and officers shall be chosen, with such other details as they shall deem necessary to perfect the said consolidation and merger; but said agreement shall not be effective unless the same shall be approved by the stockholders of said corporations, in the manner hereinafter provided.

"II. Said agreement shall be submitted to the stockholders of each of said corporations, at separate special meetings or at any annual meetings, of the time, place and object of which respective meetings due notice shall be given by publication, once a week for two consecutive weeks before said respective meetings, in at least one newspaper in the county or in each of the counties in which the principal office of said respective corporations shall be situate,—excepting in the case of the merger or consolidation of corporations which, upon their original incorporation, are required by the Constitution to publish notice of intention to incorporate for a longer period than two weeks, in which case notice by publication shall be as required by the Constitution,—and at said meetings the said agreement of the directors shall be considered, and a vote of the stockholders in person or by proxy shall be taken, by ballot, for the adoption or rejection of the same, each share of stock entitling the holder thereof to one vote; and if a majority in amount of the entire capital stock of each of said corporations shall vote in favor of said agreement, merger and consolidation, then that fact shall be certified by the secretary of each corporation, under the corporate seal thereof, and said certificates, together with the said agreement or a copy thereof, shall be filed in the office of the Secretary of the Commonwealth, who shall forthwith present the same to the Governor for his approval, and when approved by the Governor the said agreement shall be deemed and taken to be the act of consolidation of said corporation:" Act May 3rd, 1909, (P. L. 409).

As to when publication of notice in German newspapers is required, see Par. 7.

As to publication of notice in legal journals, see Par. 7.

105. AGREEMENT MUST BE APPROVED BY THE WATER SUPPLY COMMISSION.

"From and after the passage of this act, no agreement for the merger and consolidation of two or more corporations heretofore or hereafter formed for the supply of water to the public, or for the supply, storage, and transportation of water and water power for commercial and manufacturing purposes, or of any other water or water power companies, shall be approved by the Governor, nor shall letters patent be issued creating and erecting the parties to said agreement into a new corporation, unless said agreement is first submitted to, and has received the approval of, a majority of the members of the Water Supply Commission of Pennsylvania:" Act June 7th, 1907, section 2, (P. L. 455).

106. AGREEMENT MUST DESIGNATE FUTURE SOURCE OF SUPPLY.

The above quoted act of June 7th, 1907, (P. L. 455), further provides that such agreement shall not be approved by the Governor "unless said agreement shall designate the river, stream or other body of water from which it is proposed to take or use water or water power thereafter, and also, as near as may be, the points on said river, stream or other body of water, between which said water or water power is proposed to be taken or used; nor unless said agreement shall stipulate that the right heretofore existing in any of the corporations, parties to said agreement, to take or use water or water power from any river, stream or other body of water, or portions thereof, not so designated, shall be and are thereby forfeited and surrendered, and shall revert to this Commonwealth."

107. RIGHTS OF EMINENT DOMAIN OVER WATER FORFEITED UPON CONSOLIDATION AND MERGER.

"No such agreement of merger and consolidation shall be approved by the said Water Supply Commission of Pennsylvania, nor by the Governor, until each of the corporations, parties thereto, shall have filed in the office of The Water Supply Commission of Pennsylvania a written acceptance, under the seal of said corporation and authorized by a majority of the stockholders thereof, both of this act and of the act approved April thirteenth, one thousand nine hundred and five, entitled 'An act providing that the right of eminent domain, as respects the appropriation of streams, rivers, or waters, or the land covered thereby, shall not be exercised by water companies incorporated under law,' agreeing to be subject to and bound by the provisions of both of said acts, with like effect as if said corporations had been formed subsequently to the passage of both of said acts; and shall, also, have filed a certified copy of said acceptance in the office of the Secretary of the Commonwealth:" Act June 7th, 1907, section 2, (P. L. 455).

108. COMPLETION OF MERGER AND CONSOLIDATION.

"Upon the filing of said certificates and agreement, or copy of the agreement, in the office of the Secretary of the Commonwealth, and upon the issuing of new letters patent thereon by the Governor, the said merger shall be deemed to have taken place, and the said corporations to be one corporation under the name adopted in and by said agreement, possessing all the rights, privileges and franchises theretofore vested in each of them, and all the estate and property, real and personal, and rights of action of each of said corporations, shall be deemed and taken to be transferred to and vested in the said new corporation without any further act or deed: Provided, That all rights of creditors and all liens upon the property of each of said corporations shall continue unimpaired, and the respective constituent corporations may be deemed to be in existence to preserve the same; and all debts, duties and liabilities of each of said constituent corporations shall thenceforth attach to the said new corporation, and may be enforced against it to the same extent and by the same process as if said debts, duties and liabilities had been contracted by it. But such merger and consolidation shall not be complete, and no such consolidated corporation shall do any business of any kind, until it shall have first obtained from the Governor of the Commonwealth new letters patent, and shall have paid to the State Treasurer a bonus as prescribed by law upon all its capital stock in excess of the amount of capital stock of the several corporations so consolidating, upon which the bonus required by law has been theretofore paid; and provided further, That new letters patent of such consolidated corporation shall not be issued by the Governor of the Commonwealth, until each and every corporation entering into and forming the consolidated corporation shall have filed with the Secretary of the Commonwealth a certificate from the Auditor General of the Commonwealth, setting forth that all reports required by the Auditor General of the Commonwealth have been duly filed to the date of the proposed merger, and that all taxes due the Commonwealth of Pennsylvania have been paid, up to and including said date:" Act May 3rd, 1909, section 3, (P. L. 410).

"A certified copy of said certificate and agreement, or copy of agreement, so to be filed in the office of the Secretary of the Commonwealth, shall be evidence of the lawful holding and action of such meetings, and of the merger and consolidation of said corporations:" Act of May 3rd, 1909, section 4, (P. L. 410).

109. REMEDY FOR DISSENTING STOCKHOLDERS.

"If any stockholder or stockholders of any corporation, which shall become a party to an agreement of merger and consolidation hereunder, shall be dissatisfied with or object to such consolidation, and shall have voted against the same at the stockholders' meeting, it shall and may be lawful for any such stockholder or stockholders, within thirty days after the adoption of said agreement of merger and consolidation by the stockholders, as herein provided, and upon reasonable notice to said corporation, to apply by petition to any court of common pleas of the county in which the chief office of such corporation may be situate, or to a judge of said court in vacation, if no such court sits during said period, to appoint three disinterested persons to estimate and appraise the damages, if any, done to such stockholder or stockholders by said consolidation. Upon such petition, it shall be the duty of said court or judge to make such appointment, and the award of the persons so appointed, or of a majority of them when confirmed by the said court, shall be final and conclusive; and the persons so appointed shall also appraise the share or shares of said stockholders, in the said corporation, at the full market value thereof, without regard to any appreciation or depreciation in consequence of the said consolidation; which appraisement, when confirmed by the said court, shall be final and conclusive; and the said corporation may, at its election, either pay to the said stockholder or stockholders the amount of damages so found and awarded, if any, or the value of the stock so ascertained; and upon the payment of the value of the stock, as aforesaid; the said stockholder or stockholders shall transfer the stock so held by them to the said corporation, to be disposed of by the directors thereof or to be retained for the benefit of the other stockholders; and in case the value of said stock, as aforesaid, shall not be so paid within thirty days after the said award shall have been confirmed by said court, the damages so found and confirmed shall be a judgment against said corporation, and may be collected as other judgments in said court are by law recoverable:" Act of May 3rd, 1909, section 5, (P. L. 411).

B. SALE.

110. SALE OF PROPERTY AND FRANCHISES AUTHORIZED.

"Any corporation created under the provisions of this act, and any corporation of the classes named in the second section hereof, that is now in existence by virtue of any law of this Commonwealth, may reduce its capital stock or alter and change the par value of the shares thereof, by a vote of the stockholders taken in the manner and under the regulations prescribed in the eighteenth, nineteenth, twentieth, twenty-first and twenty-second sections of this act; and it shall be lawful for any corporation in the same manner to sell, assign, dispose of and convey to any corporation created under or accepting the provisions of this act, its franchises, and all its property, real, personal and mixed, and thereafter such corporation shall cease to exist, and the said property and franchises not inconsistent with this act, shall thereafter be vested in the corporation so purchasing as aforesaid:" Act April 17th, 1876, section 5, (P. L. 30), amending act April 29th, 1874, section 23.

Under this act all water companies, whether created before or after the act of April 17th, 1876, may sell, assign, dispose of and convey their franchises and property to other water companies, and such property and franchises will thereupon become vested in the purchasing company: Hey v. Springfield Water Co., 207 Pa. 38.

111. PROCEEDINGS TO SELL PROPERTY AND FRANCHISES.

The above quoted section 5 of the act of April 17th, 1876, amending section 23 of the act of April 29th, 1874, providing for the sale, assignment, disposition and conveyance of the property and franchises of one corporation to another, provides that such sale shall be made in the manner and under the regulations prescribed in the nineteenth, twentieth, twenty-first and twenty-second sections of the act of April 29th, 1874. The said sections were the original method under the act of April 29th, 1874, of increasing the capital stock or indebtedness of a corporation, and while they have been superceded by the provisions of the act of February 9th, 1901, (P. L. 3), for that purpose, they still provide the method for the sale of the property and franchises of one corporation to another, and their provisions are as follows:

"Any such corporation desirous of increasing its capital stock or indebtedness as provided by this act, shall, by a resolution of its board of directors, call a meeting of its stockholders therefor, which meeting shall be held at its chief office or place of business in this Commonwealth; and notice of the time, place and object of said meeting, shall be published once a week for sixty days prior to such meeting, in at least one newspaper published in the county, city or borough wherein such office or place of business is situate:" Act April 29th, 1874, section 19.

As to when publication of notice in German newspapers is required, see Par. 7.

"At the meeting called, pursuant to the nineteenth section of this act, an election of the stockholders of such corporation shall be taken for or against such increase, which shall be conducted by three judges, stockholders of said corporation, appointed by the board of directors to hold said election, and if one or more of said judges be absent, the judge or judges present shall appoint a judge or judges, who shall act in the place of the judge or judges absent, and who shall respectively take and subscribe an oath or affirmation before an officer authorized by law to administer the same, well and truly, and according to law, to conduct such election to the best of their ability; and the said judges shall decide upon the qualification of voters, and when the election is closed count the number of shares voted for and against such increase, and declare whether the persons or bodies corporate holding the larger amount of the stock of such corporation have consented to such increase, or refused to consent thereto, and shall make out duplicate returns of said election, stating the number of shares of stock that voted for such increase, and the number that voted against such increase, and subscribe and deliver the same to one of the chief officers of said company:" Act April 29th, 1874, section 20.

"Each ballot shall have endorsed thereon the number of shares thereby represented, and be signed by the holder thereof, or by the person holding a proxy therefor, but no share or shares transferred within sixty days shall entitle the holder or holders thereof to vote at such election or meeting, nor shall any proxy be received, or entitle the holder to vote, unless the same shall bear date and have been executed within three months" (two months, Act March 5th, 1903, P. L. 14). "next preceding such election or meeting; and it shall be the duty of such corporation to furnish the judges at said meeting with a statement of the amount of its capital stock, with the names of persons or bodies corporate holding the same, and number of shares by each respectively held, which statement shall be signed by one of the chief officers of such corporation, with an affidavit thereto annexed, that the same is true and correct to the best of his knowledge and belief:" Act April 29th, 1874, section 21.

"It shall be the duty of such corporation, if consent is given to such increase, to file in the office of the Secretary of the Commonwealth, within thirty days after such election or meeting, one of the copies of the return of such an election provided for by the twentieth section of this act, with a copy of the resolution and notice calling same thereto annexed; and upon the increase of the capital stock or indebtedness of such corporation made pursuant thereto, it shall be the duty of the president or treasurer of such corporation, within thirty days thereafter, to make a return to the Secretary of the Commonwealth, under oath, of the amount of such increase and terms of the same, that is to say, the terms on which additional stock is issued; and in case of neglect or omission so to do, the corporation shall be subject to a penalty of five thousand dollars, which penalty shall be collected on an account settled by the Auditor General and State Treasurer, as accounts for taxes due the Commonwealth are settled and collected; and the Secretary of the Commonwealth shall cause said returns to be recorded in a book to be kept for that purpose, and furnish a certified copy of the same to the Auditor General, and the corporation shall have the right to recover the same from the officer neglecting or omitting to file the return as aforesaid:" Act April 29th, 1874, section 22.

112. FUTURE SOURCE OF SUPPLY MUST BE DESIGNATED AND APPROVED BY WATER SUPPLY COMMISSION BEFORE SALE.

"From and after the passage of this act, no sale, assignment, disposition, transfer, and conveyance of the franchises, and all the property, real, personal, and mixed, of any corporation heretofore or hereafter formed for the supply of water to the public, or for the supply, storage, and transportation of water and water power for commercial and manufacturing purposes, or of any other water or water power company, to any other such corporation, shall be valid until a certificate, authorized by a majority of the stockholders of the corporation so purchasing, and duly executed by the president and secretary thereof, under the seal of said corporation, designating the river, stream, or other body of water, and, as near as may be, the points on the said river, stream, or other body of water, between which it is proposed to take or use water or water power thereafter, and stipulating that the right heretofore existing in either the corporation so purchasing or the corporation so selling to take or use water or water power from any river, stream, or other body of water, or portions thereof, not so designated, shall be and are hereby forfeited and surrendered and shall revert to this Commonwealth, shall have been approved by a majority of the members of The Water Supply Commission of Pennsylvania and filed in the office of the Secretary of the Commonwealth:" Act June 7th, 1907, section 3, (P. L. 455).

113. RIGHT OF EMINENT DOMAIN OVER WATERS FORFEITED UPON SALE.

The above quoted section 3 of the act of June 7th, 1907, further provides that "No such certificate shall be approved by the said Water Supply Commission of Pennsylvania, until the corporation so purchasing shall have filed in the office of The Water Supply Commission of Pennsylvania a written acceptance, under the seal of said corporation and authorized by a majority of the stockholders thereof, both of this act and of the act approved April thirteenth, one thousand nine hundred and five, entitled 'An act providing that the right of eminent domain, as respects the appropriation of streams, rivers, or waters, or the land covered thereby, shall not be exercised by water companies incorporated under law,' agreeing to be subject to and bound by the provisions of both of said acts, with like effect as if said corporation had been formed subsequently to the passage of both of said acts, and shall have filed a certified copy of said acceptance in the office of the Secretary of the Commonwealth."

114. EFFECT OF SALE.

Where a water company sells and by proper deed conveys all of its franchises to another company, the company so selling ceases to exist: Com. v. Lumber City Water Co., 225 Pa. 317.

115. REORGANIZATION AFTER JUDICIAL SALE.

"That whenever the material, rolling stock, property, and franchises of any gas, water, coal, iron, steel, lumber, oil, or mining or manufacturing, transportation or telegraph, company, or any railroad, canal, turnpike, bridge, or plank road, or of any corporation created by, or under any law of this State, shall be sold and conveyed, under and by virtue of any process or decree of any court of this State, or of the circuit *or district* court of the United States, or under or by virtue of a power of sale contained in any mortgage or deed of trust, without any process or decree of a court in the premises, the person or persons for or on whose account such material, rolling stock, property, and franchises of any gas, water, coal, iron, steel, lumber, oil, or mining or manufacturing, transportation or telegraph company, or any railroad, canal, turnpike, bridge, or plank road, or of any corporation created by or under any law of this State, may be purchased, shall be and they are hereby constituted a body politic and corporate, and shall be vested with all the rights, title, interest, property, possession, claim, and demand, in law and equity, of, in, and to such material, rolling stock, property, or franchise of any gas, water, coal, iron, steel, lumber, oil, or mining or manufacturing, transportation or telegraph company, or any railroad, canal, turnpike, bridge, or plank road, or of any corporation created by or under any law of this State, with the appurtenances, and with all the rights, powers, immunities, privileges, and franchises of the corporation as whose the same may have been so sold, and which may have been granted to or conferred thereupon by any act or acts of Assembly whatsoever, in force at the time of such sale and conveyance, and subject to all the restrictions imposed upon such corporations by any such act or acts, except so far as the same are modified hereby; and the person for or on whose account any such material, rolling stock, property, and franchises of any gas, water, iron, steel, lumber, oil, or mining, or manufacturing, transportation or telegraph company, or any railroad, canal, turnpike, bridge, or plank road, or of any corporation created by or under any law of this State, may have been purchased, shall meet, within thirty days after the conveyance thereof shall be delivered,—public notice of the time and place of such meeting having been given, at least once a week for two weeks, in at least one newspaper published in the city or county in which such sale may have been held,—and organize said new corporation by electing a president and board of six directors (to continue in office until the first Monday of May, succeeding such meeting, when, and annually thereafter on the said day, a like election for a president and six directors shall be held, to serve one year), and shall adopt a corporate name and common seal, determine the amount of the capital stock thereof, not exceeding the amount authorized in the original charter, and shall have power and authority to make and issue certificates therefor to the purchaser or purchasers aforesaid, to the amount of their respective interest therein, in shares of fifty dollars each; and may then, or at any time thereafter, create and issue preferred stock to such an amount and on such terms as they may be necessary, and, from time to time, to issue bonds, at a rate of interest not exceeding six per centum, to any amount not exceeding their capital stock, and to secure the same by one or more mortgages upon the real and personal property and corporate rights, and franchises, or either, or any part or parts thereof: Provided, That no coal, iron, steel, lumber, or oil, or mining, manufacturing, transporation, or telegraph company, or mining, manufacturing, transportation, or telegraph company, shall have the benefit of this act, unless it shall have previously filed with the Secretary of State its acceptance of all the provisions of the Constitution, as provided by law;" Act April 27, 1909, (P. L. 175).

C. LEASE.

116. LEASE AUTHORIZED.

"It shall and may be lawful for any corporation, organized under the provisions of this act, either for the purpose of carrying on any manufacturing business, or for the supply of water, or for the manufacture or supplying of light .... to enter into contracts for the use or lease of the corporate property, real, personal, or mixed, of such company, upon such terms as may be agreed upon with the company or companies owning the same, and to run, use and operate such property in accordance with such contract or lease:" Act April 29th, 1874, section 12, as amended by Act June 26th, 1895, (P. L. 369), as re-enacted by Act of March 24th, 1905, (P. L. 56).

Under this act a water company may lease its property and franchises to another water company organized under the same act: Moore v. Chartiers Valley Water Co., 216 Pa. 457.

D. OWNERSHIP OF STOCK.

117. OWNERSHIP OF STOCK OF WATER COMPANIES BY OTHER WATER COMPANIES AUTHORIZED.

"It shall, and may be, lawful for any corporation, organized under the provisions of this act, either for the purpose of carrying on any manufacturing business or for the supply of water, or for manufacture or supplying of light, to subscribe for, take, purchase, hold and dispose of the bonds or stock in any company of the same character incorporated under the provisions of this act or its supplements, or guarantee the payment of said bonds and the interest thereon, or either principal or interest:" Act April 29th, 1874, section 12, as amended by Act June 26th, 1895, (P. L. 369), as amended by Act of March 24th, 1905, (P. L. 56).

"That hereafter any corporation, organized for profit, created by general or special laws, may purchase, hold, sell, assign, transfer, mortgage, pledge, or otherwise dispose of, the shares of the capital stock of, or any bonds, securities or evidences of indetedness created by, any other corporation or corporations of this or any other State, and while the owner of said stock may exercise all the rights, powers and privileges of ownership, including the right to vote thereon:" Act July 2nd, 1901, (P. L. 603).

118. OTHER CORPORATIONS MAY OWN STOCK OF COMPANIES FOR THE SUPPLY, STORAGE AND TRANSPORTATION OF WATER AND WATER POWER FOR COMMERCIAL AND MANUFACTURING PURPOSES.

The act of July 2nd, 1895, (P. L. 432), conferring further powers upon corporations "for the supply, storage and transportation of water and water power for commercial and manufacturing purposes," also provides that "the stock in any company incorporated for the purpose named in this act may be owned and held by corporations of this State, or of other states of the United States."

119. RAILROAD COMPANIES MAY OWN STOCK OF WATER COMPANIES.

"In order to enable railroad companies of this Commonwealth to secure an adequate supply of water for their necessary corporate purposes, they are hereby authorized, from time to time, to acquire, own, and hold, pledge, sell or otherwise dispose of, the stock, bonds and other securities, or either, and to guarantee the stock, bonds and other securiites, or either, of water companies:" Act April 22nd, 1905, (P. L. 264).

XIV.

DISSOLUTION AND FORFEITURE.

120. VOLUNTARY DISSOLUTION BY PETITION OF COMPANY.

"It shall be lawful for any court of Common Pleas of the proper county to hear the petition of any corporation, under the seal thereof, by, and with, the consent of a majority of a meeting of the corporators, duly convened, praying for permission to surrender any power contained in its charter, or for the dissolution of such corporation; and if such court shall be satisfied that the prayer of such petition may be granted without prejudice to the public welfare, or the interests of the corporators, the court may enter a decree in accordance with the prayer of the petition, whereupon such power shall cease, or such corporation be dissolved: Provided, That the surrender of any such power shall not in any wise remove any limitation or restriction in such charter; and that the accounts of the managers, directors or trustees of any dissolved company shall be settled in such court and be approved thereby; and dividends of the effects shall be made among any corporators entitled thereto, as in the case of the accounts of assignees and trustees: Provided, further, That no property devoted to religious, literary or charitable uses shall be diverted from the objects for which they were given or granted: Provided, That the decree of said court shall not go into effect until a certified copy thereof be filed and recorded in the office of the Secretary of the Commonwealth:" Act April 9th, 1856, (P. L. 293).

"No corporation, company, joint stock association, association or limited partnership, made taxable by this act, shall hereafter be dissolved by the decree of any court of Common Pleas, nor shall any judicial sale be valid or a distribution of the proceeds be made until all taxes due the Commonwealth have been fully paid into the State Treasury and the certificate of the Auditor General, State Treasurer and Attorney General to this effect filed in the proper court with the proceedings for dissolution or sale:" Act June 1, 1889, section 32, (P. L. 437).

"The 'proper county' intended by said act, the act of April 9th, 1856, approved as aforesaid, may be, at the option of any corporation praying for permission to dissolve, either the county in which the principal operations of the corporations are conducted, or that county in which its principal office or place of business is located: Provided, That notice of such application shall be given, by publication in two newspapers in the county in which the principal operations are conducted, and that in which the principal office is located:" Act April 4th, 1872, (P. L. 40).

121. OTHER FORMS OF DISSOLUTION.

1. The consolidation and merger of two or more corporations usually works a dissolution of the corporations so merging, and the creation of a new one having the rights and franchises of the constituent companies: Pennsylvania Railroad Co. v. Ohio River Junction Railroad Co., 204 Pa. 356.

2. The sale of all the property and franchises of a corporation to another works a dissolution of the corporation so selling: Commonwealth v. Lumber City Water Co., 225 Pa. 317.

3. The sale of the property and franchises of a corporation at judicial sale works a dissolution of the corporation, the purchasers thereof having the right to recognize and form a new corporation, whose existence dates from the completion of such organization: Reitler v. Honesdale & Delaware Plank Road Co., 1 Pa. C. C. 64.

4. The expiration of the time for which the company was incorporated works a dissolution.

122. DISSOLUTION BY PROCLAMATION OF THE GOVERNOR.

It was provided in the act of April 24th, 1874, (P. L. 68), which act provided for the filing of reports by corporations with the Auditor General and the paying of taxes, and was re-enacted in the act of March 20th, 1877, (P. L. 6), that "if an officer of any such corporation or company shall intentionally fail to comply with the provisions of the first section of this act for three successive years, the Auditor General shall report the fact to the Governor, who, if he shall be made satisfied that such failure was intentional, shall thereupon, by proclamation, declare the charter of such corporation or company forfeited and its charter privileges at an end, whereupon the same shall cease, end and be determined."

123. FORFEITURE FOR MIS-USER OR NON-USER.

The charter of a corporation may be forfeited by a proceeding of quo warranto by the Attorney General on behalf of the State for mis-user or non-user of franchises in regard to matters which are of the essence of the contract between the corporation and the State where the acts or omissions complained of, have been repeated and wilfull: Commonwealth v. Commercial Bank, 26 Pa. 389; Clineclamouche Lumber Co. v. Commonwealth, 100 Pa. 438.

"Writs of quo warranto in the form and manner hereinafter provided may also be issued by the several courts of common pleas (concurrently with the Supreme Court) in the following cases, to wit:

"V. In case any corporation, as aforesaid, shall forfeit by misuser or non-user its corporate rights, privileges or franchises or shall do, suffer or omit to do, any act, matter or thing whereby a forfeiture thereof shall by law be created, or shall exercise any power, privilege or franchise not granted or appertaining to such corporation.

"In any such case the writ aforesaid may be issued upon the suggestion of the Attorney General, or his deputy in the respective county, or of any person or persons desiring to prosecute the same:" Act June 14th, 1836, section 2, (P. L. 621).

Notwithstanding the provision of the Act of June 14th, 1836, that a writ of quo warranto may be issued upon the suggestion of any person or persons desiring to prosecute the same, a writ will not lie at the relation of a private citizen to forfeit the charter of a corporation. While the act authorizes the writ to issue on the relation of any one desiring to prosecute the same, the courts will allow no one to desire at law that in which he has no interest: Commonwealth v. Allegheny Bridge Co., 20 Pa. 185; Murphy v. Farmers Bank, 20 Pa. 415; Commonwealth v. Philadelphia, Germantown and Norristown Railway Co., 20 Pa. 518; Commonwealth v. Farmers Bank, 2 Grant 392; Commonwealth v. Dillon, 81 Pa. 41.

"Whenever the Attorney General shall have reason to believe that any association as aforesaid has acted as a corporation or exercised any of the franchises or privileges thereof without lawful authority or if any corporation has forfeited its corporate rights, privileges or franchises as aforesaid or exercised any power, privilege or franchise not granted or appertaining to such corporation, it shall be his duty to file or cause to be filed a suggestion as aforesaid, and to proceed thereon for the determination of the matter:" Act June 14th, 1836, section 3, (P. L. 621).

124. JURISDICTION IN QUO WARRANTO.

"The court of common pleas of Dauphin county is hereby clothed with jurisdiction throughout the State for the purpose of hearing and determining all suits, claims and demands whatever, at law or in equity, in which the Commonwealth may be partly plaintiff:" Act April 7th, 1870, (P. L. 57).

"Courts of common pleas of the several counties of this Commonwealth are hereby clothed with jurisdiction in all cases in which the Commonwealth is a party:" Act July 10th, 1901, (P. L. 637).

125. FORFEITURE FOR FAILURE TO COMMENCE OR COMPLETE WORKS.

"If any company incorporated under this act, or any of its supplements, shall not proceed in good faith to carry on its work and construct or acquire its necessary buildings, structures, property or improvements within the space of two years from the date of its letters patent and shall not, within the space of five years thereafter complete the same, the rights and privileges thereby granted to said corporation shall revert to the Commonwealth: Provided, however, That it shall be lawful for any such corporation who shall have proceeded in good faith as aforesaid, at any time before the expiration of the said period of five years, or of any extension thereof, to apply to the court of common pleas in and for the county in which said corporation shall have its principal office for an extension of such time as herein provided. Such application shall be made upon a petition, under the common seal of such corporation and verified by its president or other presiding officer, setting out the grounds of the application, and that the same is made pursuant to a resolution of the board of directors of said company at a meeting called for that purpose, a duly certified copy of which resolution shall be annexed to said petition. Thereupon it shall be the duty of such court to set down said petition for hearing before it upon some day to be fixed by said court, and to direct that notice of such petition shall be given by publication or otherwise, as the court shall direct. Upon the day so fixed, or upon such subsequent day or days as the matter may be adjourned to, said court shall proceed to a hearing of said petition, and it being made to appear to said court that the order of notice herein provided for has been complied with, said court may, by order, adjudge and direct that the time of such corporation to complete its necessary buildings, structures, property or improvements shall be extended for a period not exceeding five years beyond the time fixed by law for the completion thereof, and thereupon upon filing a duly certified copy of such order in the office of the Secretary of the Commonwealth, the time of such corporation to complete its necessary buildings, structures, property or improvements shall be extended as provided in such order: Provided further, That when said buildings, structures, property or improvements are wholly within one county, said application shall be made to the court of common pleas in, and, for said county:" Act April 17th, 1876, section 11, (P. L. 37), as amended by Act May 16th, 1889, section 2, (P. L. 242).

"Any corporation of the second class, created under the provisions of the act to which this is a supplement, or any of its supplements, that shall not, within two years, from the date of its letters patent, proceed in good faith to organize and to do the things contemplated by its charter, and have paid up at least, one-fourth of its capital stock, shall be held and deemed to have forfeited its charter, and the Attorney General shall, on the application of any citizen, take the proper legal steps to forfeit and vacate its said charter, but any corporation now in existence shall have two years from the date of this act to do, and perform, the things by this section required:" Act June 13th, 1883, section 5, (P. L. 123).

It has been held by the Supreme Court, that under the provisions of section 11 of the act of April 17th, 1876, which are identical with the provisions of the act of May 16th, 1889, that the general rule of law, that a corporation is not dissolved for mis-user or non-user of its franchises without a proceeding on the part of the State for that purpose, did not apply, but that if the company failed to do anything toward the building of its works within two years or to complete the same within five years thereafter, its franchise reverted to the State without a judgment of court: Commonwealth v. Lykens Water Co., 110 Pa. 391.

Notwithstanding this decision, which was given after the passage of the act of June 13th, 1883, it has been held by the court of common pleas of Dauphin County, and also by the Attorney General's Department, that before a forfeiture of a charter of a corporation occurs there must be action by the Attorney General, as provided by the said act of June 13th, 1883: Lebanon Water Co.'s Petition, 4 Dauph. 228; Unorganized Trust Cos., 10 Dauph. 74; 33 Pa. C. C. 353.

In a later common pleas case it has been decided that even though the court could not, in a collateral proceeding determine a forfeiture for failure to commence or complete the work within the time prescribed, it could determine that a corporation had no right to exercise a particular franchise where it appeared that the franchise had been lost by reason of the company's failure to commence or complete work: Chester County Gas Co. v. Merion & Radnor Gas and Electric Co., 16 Dist. 214.

The five years within which it is provided by the act of May 16th, 1889, a corporation must complete its works dates from the end of the two years within which it is allowed to commence: Degan v. Meadow Brook Water Co., 3 Lack. Jur. 233; in re Petition of Meadow Brook Water Co., 1 Lack. L. N. 143.

126. WHAT CONSTITUTES COMMENCEMENT OF WORK.

It has never been decided just what is a commencement of work necessary to prevent a forfeiture of a charter with reference to a water company or any company formed under the act of April 29th, 1874. It has, however, been decided with reference to a street railway company under a statutory provision similar to that contained in the act of April 17th, 1876, that a distribution and location of ties, rails and other materials along the bed of a highway upon which the street railway is to be constructed, followed by the digging up of the highway to a depth of eleven inches to receive the ties and rails is a beginning of the work of construction: Upper Providence v. Trappe & Limerick Electric Street Railway Co., 20 Mont. 167.

It has also been held with reference to a gas and electric company formed by the consolidation of a number of companies incorporated under the act of April 29th, 1874, that the commencing of work in a single district covered by the charter of any one of the constituent companies, even though before the consolidation, is a commencing of work within the whole district covered by the consolidated company, if it is the intention to supply gas and electricity in the entire district: Chester County Gas Co. v. Merion & Radnor Gas & Electric Co., 16 Dist. 214.

XV.

OFFENCES AGAINST WATER COMPANIES.

127. TAKING OF WATER WITHOUT AUTHORITY.

"If any person or persons shall open a communication into the water or gas main or other pipe of said company, without authority from the inspector or other authorized agent of said company, or shall let on the water or gas, after either shall have been stopped by order of said inspector or authorized agent of said company for repairs or any other cause or purpose, or shall put up any hydrants, pipes or burners, in addition to those originally put up and inspected, and introduce into them, water and gas, as the case may be, without authority as aforesaid, he, she or they shall be subject to a penalty of not less than ten, nor more than one hundred dollars, recoverable before any alderman or justice of the peace of the proper county, as debts of like amount are by law recoverable, one-half to be paid to the informer, and one-half to the company:" clause 5, section 34, Act of April 29th, 1874.

The imposing of a penalty for turning on or taking the water of a water company without authority is a legitimate exercise of the police power of the Commonwealth, and is intended to protect the interest of the public by investing those who have undertaken to discharge a duty to the public with the absolute control of the instrumentalities for discharging that duty, and the officers or agents of a borough have no more authority to turn on and take the water of a water company than a private individual, and should they do so, even under cover of a resolution of the borough council, they are individually liable to the penalty: Tyrone Gas & Water Co. v. Burley 19 Superior Court 348.

128. INJURING WORKS OF A WATER COMPANY.

"If any person shall wilfully or maliciously do, or cause to be done, any act or acts whatever, whereby any building construction, reservoir or works of said company, or any water or gas pipe, gas post, burner or reflector, or any matter or thing appertaining to the same shall be stopped or obstructed, injured, contaminated or destroyed, the person or persons so offending shall be considered guilty of a misdemeanor, and may therefor be indicted in the court of quarter sessions of the proper county, and on conviction thereof, shall be punished by a fine not exceeding five hundred dollars, or be imprisoned not exceeding one year, or both, at the discretion of the court: Provided, That such criminal prosecution shall not in any way impair the right of said company to a full compensation in damages by civil suit:" clause 6, section 34, act of April 29th, 1874.

129. TRESPASS AND POLLUTION OF WATERS.

That any person who shall wilfully enter upon the enclosed land of any company incorporated under the laws of this Commonwealth for the purpose of supplying water to the public for drinking purposes, on which land is erected a dam, reservoir, pond or other artificial means for storing water, and pollute or attempt to pollute the water on such land, shall be deemed, and the same is hereby declared to be a misdemeanor, and may be prosecuted and convicted as such under the laws of this Commonwealth, and conviction thereof in the court of quarter sessions of the proper county, shall be fined not exceeding fifty dollars and imprisonment not exceeding sixty days: Act June 24, 1895, section 1, (P. L. 231).

That any duly constituted watchman of any such water company, or any constable or policeman, is hereby authorized and empowered, upon his own view of any such trespass, to make arrests and bring before any alderman or magistrate of the proper county, offenders found violating the provisions of this act: Act June 24, 1895, section 2, (P. L. 231).

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